Service Manual for the Lang Models:

GCCO-T, GCCO-AP, GCCO-SII, GCCO-C, GCCO-PP, GCCO-PT,

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IMPORTANT READ FIRST IMPORTANT

CAUTION	**THE OVEN WEIGHS 500 LBS. FOR SAFE HANDLING, INSTALLER SHOULD OBTAIN HELP AS NEEDED, OR EMPLOY APPROPRIATE MATERIALS HANDLING EQUIPMENT (SUCH AS A FORKLIFT, DOLLY, OR PALLET JACK) TO REMOVE THE UNIT FROM THE SKID AND MOVE IT TO THE PLACE OF INSTALLATION.**
CAUTION	**ANY STAND, COUNTER OR OTHER DEVICE ON WHICH THE OVEN WILL BE LOCATED MUST BE DESIGNED TO SUPPORT THE WEIGHT OF THE OVEN.**
CAUTION	**SHIPPING STRAPS ARE UNDER TENSION AND CAN SNAP BACK WHEN CUT.**
WARNING	**INSTALLATION OF THE UNIT MUST BE DONE BY PERSONNEL QUALIFIED TO WORK WITH PLUMBING. IMPROPER INSTALLATION CAN CAUSE INJURY TO PERSONNEL AND/OR DAMAGE TO EQUIPMENT. UNIT MUST BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE CODES.**
NOTICE	**The data plate is located above control panel behind wire mesh screen. The oven serial number, gas specifications, and clearance specifications are on the data plate. This information should be carefully read and understood before proceeding with the installation.**
NOTICE	**The installation of any components such as a vent hood, grease extractors, fire extinguisher systems, must conform to their applicable National, State and locally recognized installation standards.**
WARNING	**THIS APPLIANCE IS EQUIPPED WITH A 3-PRONG (GROUNDING) PLUG FOR YOUR PROTECTION AGAINST SHOCK HAZARD AND MUST BE PLUGGED DIRECTLY INTO A PROPERLY GROUNDED 3-PRONG RECEPTACLE. DO NOT CUT OR REMOVE THIS GROUNDING PRONG FROM THE PLUG.**
WARNING	**CONVECTION OVENS INSTALLED WITH CASTERS MUST HAVE THE FOLLOWING: A CONNECTOR THAT COMPLIES WITH THE STANDARD FOR CONNECTORS FOR MOVABLE GAS APPLIANCES ANSI Z21.69 LATEST EDITION, A QUICK DISCONNECT THAT COMPLIES WITH THE STANDARD FOR QUICK DISCONNECT DEVICES FOR USE WITH GAS FUEL, ANSI Z21.141 LATEST EDITION, A TETHER OR OTHER MEANS TO LIMIT APPLIANCE MOVEMENT WITH OUT RELIANCE ON THE GAS SUPPLY PIPING. SECURELY ATTACH THE TETHER TO THE EYEBOLT PROVIDED AT THE REAR OF THE APPLIANCE.**
NOTICE	**Kits designed to accommodate ovens from sea level to 5000 feet. Contact factory for orifice sizes on installations above 5000 feet.**
WARNING	**BEFORE LIGHTING, USE A SOAP AND WATER SOLUTION TO TEST ALL JOINTS FOR GAS LEAKS.**
NOTICE	**During the first few hours of operation you may notice a small amount of smoke coming off the oven, and a faint odor from the smoke. This is normal for a new oven and will disappear after the first few hours of use.**
CAUTION	**ALWAYS KEEP THE AREA NEAR THE APPLIANCE FREE FROM COMBUSTIBLE MATERIALS.**

IMPORTANT READ FIRST IMPORTANT

CAUTION	**KEEP FLOOR IN FRONT OF EQUIPMENT CLEAN AND DRY. IF SPILLS OCCUR, CLEAN IMMEDIATELY, TO AVOID THE DANGER OF SLIPS OR FALLS.**	
WARNING	**KEEP WATER AND SOLUTIONS OUT OF CONTROLS. NEVER SPRAY OR HOSE CONTROL CONSOLE.**	
CAUTION	**MOST CLEANERS ARE HARMFUL TO THE SKIN, EYES, MUCOUS MEMBRANES AND CLOTHING. PRECAUTIONS SHOULD BE TAKEN TO WEAR RUBBER GLOVES, GOGGLES OR FACE SHIELD AND PROTECTIVE CLOTHING. CAREFULLY READ THE WARNING AND FOLLOW THE DIRECTIONS ON THE LABEL OF THE CLEANER TO BE USED.**	
NOTICE	**Never leave a chlorine sanitizer in contact with stainless steel surfaces longer than 10 minutes. Longer contact can cause corrosion.**	
NOTICE	**Service on this, or any other, LANG appliance must be performed by qualified personnel only. Consult your authorized service station directory or call the factory at 1-800-224-LANG (5264), or WWW.LANGWORLD.COM For the service station nearest you.**	
WARNING	**BOTH HIGH AND LOW VOLTAGES ARE PRESENT INSIDE THIS APPLIANCE WHEN THE UNIT IS PLUGGED/WIRED INTO A LIVE RECEPTACLE. BEFORE REPLACING ANY PARTS, DISCONNECT THE UNIT FROM THE ELECTRIC POWER SUPPLY.**	
CAUTION	**USE OF ANY REPLACEMENT PARTS OTHER THAN THOSE SUPPLIED BY LANG OR THEIR AUTHORIZED DISTRIBUTORS CAN CAUSE BODILY INJURY TO THE OPERATOR AND DAMAGE TO THE EQUIPMENT AND WILL VOID ALL WARRANTIES.**	

Lang Model: GCCO
GAS FULL SIZE CONVENTION OVEN

EXTERIOR

- The oven exterior dimensions are 40" (100 cm) Wide, 32" (80 cm) High, 38" (95 cm) Deep. The Top, Front, Back, and Sides are constructed of stainless steel with an aluminized bottom.
- The oven doors come standard with a double pane window.
- The door handle is constructed of Stainless Steel and Phonolic Tubing.
- The oven cavity is insulated with high temperature insulation for efficiency and reduced heat loss.

INTERIOR

- The oven cavity dimensions are 29" (72.5 cm) Wide, 20" (50.84 cm) High, 21" (53.38 cm) Deep.
- The oven is designed for five shelves and comes with five Chrome Plated Racks.
- The interior of the oven is constructed of porcelainized stainless steel.

OPERATION

- The GCCO oven is a forced air convection oven with a vented oven cavity.
- The air is driven by a 1/3 HP fan motor.

CONTROLS

The GCCO is available either with the Lang Accu-Temp (GCCO-T), Accu-Plus (GCCO-AP), Selectronic (GCCO-SII), "Purple" Computer (GCCO-C), "Purple Plus" Computer (GCCO-PP), "Platinum" Computer (GCCO-PT):

- **GCCO-T**
  - Easy to use manual control knobs.
  - Pulse and two speed fan.
- **GCCO-AP**
  - Easy to use manual control knobs.
  - Pulse and two speed fan.
  - Solid State temperature sensing and controls.
- **GCCO-C**
  - Complete Computerized Controls with a Manual Override system.
  - Programmable up to 10 products with four "tiers" for each program.
  - Independent Shelf Timers for each Shelf.
  - Load Control through use of Cooking Curves.
  - Shelf Compensation Timing for uniform baking.
  - Single speed fan.
- **GCCO-PP**
  - The Purple Plus offer the same great one touch system of the Purple, coupled with the advanced backing capabilities of the new Platinum.

EQUIPMENT DESCRIPTION CONT'D

- **GCCO-PT**
  - Icon-driven (touch) panel allows for easy operation, also includes a manual override system.
  - Day-Part Memory capabilities allow operators to "recall" the last daily selections automatically.
  - Programmable up to 99 products, advanced baking capabilities include: a 12:59:59 timer with ten "tiers" .
  - Independent Shelf Timer for each Shelf.
  - Load Control through use of Cooking Curves.
  - Shelf Compensation Timing for uniform baking.
  - Dual speed fan.

RECEIVING THE OVEN

Upon receipt, check for freight damage, both visible and concealed. Visible damage should be noted on the freight bill at the time of delivery and signed by the carrier's agent.
Concealed loss or damage means loss or damage, which does not become apparent until the merchandise has been unpacked.
If concealed loss or damage is discovered upon unpacking, make a written request for inspection by the carrier's agent within 15 days of delivery. All packing material should be kept for inspection.
Do not return damaged merchandise to Lang Manufacturing Company. File your claim with the carrier.
Prior to un-crating, move the oven as near its intended location as practical. The crating will help protect the unit from the physical damage normally associated with moving it through hallways and doorways.

LEG INSTALLATION

Legs are available for both the single and double deck installations. Single deck installations require a 27-inch leg. Double deck installations require 6-inch legs or casters.
To install the 27-inch legs, place some cardboard on the floor and gently tip the oven onto its back. Fasten two legs to the oven's front corners using the four 5/16 inch bolts provided in the leg kit. Lift the oven onto its front legs and block the back up using one of the 27-inch legs set upside down in the center rear of the oven body. Install the last 27-inch leg onto the oven body on the control side rear. Gently lift the oven rear, remove the leg set to support the oven center and install it on the last rear corner.
To install the 6-inch legs or casters, attach the leg or caster to the leg supports supplied in the oven by following the instructions in the box, then attach the leg support to the oven.
The adjustable feet on the bottom of each leg may be screwed in or out as necessary to level the oven.
A torpedo level placed on an oven rack will assist in leveling the oven.

STACKING THE OVENS

Remove all the plug buttons from the top of the lower oven.
Remove the stacking kit from the oven compartment of one oven and install the 1 1/4-inch plastic bushing into the top of the lower oven.
Tip the top oven backwards and install two 3/8-inch socket head bolts, found in the stacking kit, into the two front leg holes that match the holes in the top of the lower oven. Install the socket head bolts with the heads of the bolt pointing away from the oven.
Lift the top oven and gently set on top of the lower oven so that the heads of the socket head bolts nest into the holes in the top of the lower oven.

ELECTRICAL CONNECTION

The electrical connection must be made in accordance with local codes or in the absence of local codes with NFPA No. 70 latest edition (in Canada use: CAS STD. C22.1).
The electrical service entrance is provided by a cord and plug located at the oven back directly behind the control compartment.
Each oven requires a 115-volt grounded supply and 7.1 amps.
Supply wire size must be large enough to carry the amperage load for the number of ovens being installed. Wire size information can be found on the oven data plate.

GAS CONNECTION

This appliance is manufactured for use with the type of gas indicated on the data plate. Contact the factory if the gas type does not match that which is on the data plate.
All gas connections must be in accordance with local codes and comply with the National Fuel Gas Code ANSI Z223.1 latest edition.
An internal gas pressure regulator is located inside the control compartment.
Gas must be delivered to the appliance regulator at less than 1/2 pound of pressure and less than 1/2-inch water column pressure drop.
The internal regulator is preset at the factory, however, due to gas pressure variations from area to area, adjust the regulator to provide the manifold pressure indicated on the data plate. This should be 5 inches water column for natural gas and 10 inch water column for propane. A 1/8-inch NPT tap is provided on the main manifold for checking regulator pressure. Access the main manifold by removing the trim piece below the oven doors. When replacing the 1/8-inch plug in the main manifold a joint sealant that is resistant to the action of liquid petroleum gas must be used.
The supply piping must be of sufficient size to provide 55,000 BTU/hr per oven. A 1/2-inch NPT connection is provided at the rear of the oven directly behind the control compartment. Connect each oven separately.
A gas shut off valve must be installed to the oven(s) and located in an accessible area.
This appliance and its individual shutoff valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 1/2 PSGI (3.45 kPA) and the appliance must be isolated from the gas supply piping system by closing its individual manual shutoff valve during any pressure testing of the gas supply system at test pressures equal to or less than 1/2 PSIG (3.45 kPA).
Test for gas leaks. Use a commercial leak detector or a soap and water solution.

FLU EXTENSION

- A flu extension must be installed on the lower oven of a stacked set.
- The extension attaches to the flu opening of the lower oven and directs the flu products into the flu opening of the upper oven.
- **This extension must be installed.**
- The ovens may now be set into position. Be careful if sliding the ovens, they are not designed to slide over cracks or obstructions in the floor.

Gas Conversions

1. Disconnect oven from power and gas.
2. Remove bottom trim piece from oven (2 hex head bolts and 1 Phillips screw).
3. Remove side panel from oven.
4. Disconnect black manifold pipe from 3/8" aluminum pipe at the furrel nut.
5. Remove two Phillips screws holding black manifold pipe to oven.
6. Remove black manifold pipe from oven.
7. Remove both burner orifices from manifold and replace with new orifices, making sure to apply pipe thread compound.
8. Remove two Phillips screws holding pilot assembly to oven.
9. Remove pilot assembly from oven.
10. Remove ¼" aluminum pipe from pilot assembly.
11. Remove pilot orifice and replace with new pilot orifice.
12. Re-attach ¼" aluminum pipe to pilot assembly.
13. Re-attach pilot assembly to oven.
14. Re-install black manifold assembly to oven, making sure that the orifice goes into the burner tubes.
15. Re-attach 3/8" aluminum pipe to black manifold assembly.
16. Remove the seal screw from the combination gas valve.
17. Remove the adjustment screw and spring from the combination valve.
18. Insert new spring into the valve and adjustment screw.
19. Re-connect oven to power and gas and check for leaks using a soap solution.
20. Adjust gas pressure to correct water column (5"NG, 10"LP).
21. Install new seal screw provided in kit and affix "Caution" sticker to the visible side of the combination valve.
22. Re-install bottom trim piece and side panel.

NG to LP

Part No.	Description	Qty.
80401-05	Pilot Orifice, Drilled .010	1
80400-14	Main Burner Orifice, Drilled #53	2
80505-11	Combination Gas Valve Spring, Includes: 1. Spring 2. Seal Screw 3. Caution Sticker	1

LP to NG

Part No.	Description	Qty.
80401-10	Pilot Orifice, Drilled .018	1
80400-13	Main Burner Orifice, Drilled #43	2
80505-16	Combination Gas Valve Spring, Includes: 1. Spring 2. Seal Screw 3. Caution Sticker	1

GCCO-AP / GCCO-C / GCCO-PP / GCCO-PT / GCCO-SII / GCCO-T

Convection Oven Start-Up

1) Verify connections at plug and terminal block ☐

2) Incoming Gas - Water Column_____

Natural Gas ☐ Propane ☐

3) Incoming Voltage L1_____

4) Motor amp draw _____

5) Are programs correct? Yes ☐ No ☐

6) Verify actual temperature at 350 °F _____ °F.

Note:
Install thermocouple wire in center of oven cavity.
Let oven cycle off and on 3 times before recording temperature.

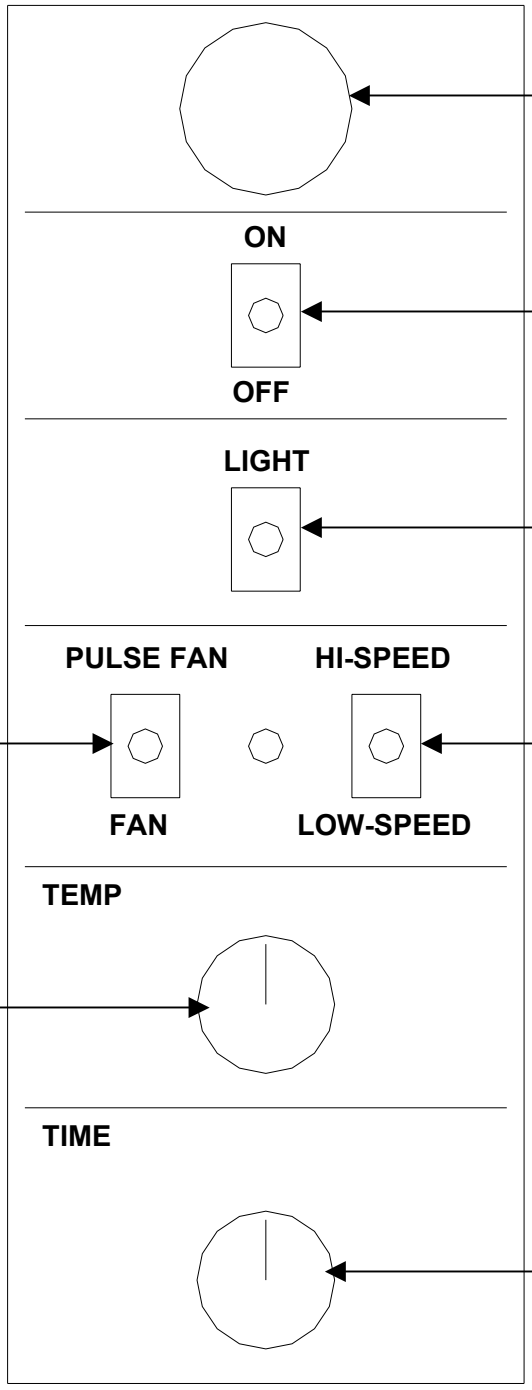
Set manual program in the computer for 350 °F

Model #_____ Date_____ Serial #_____

Store #_____ Tech Name_____
Contact_____ Company _____
Store Phone #_____ Service Company Phone #_____

Address_____
_____
_____

CONTROL PANEL GCCO-T



Vent Knob.

Power switch.

Light switch. Inspection light only. Push toggle switch to the up position to inspect product. Switch will automatically return to the off position.

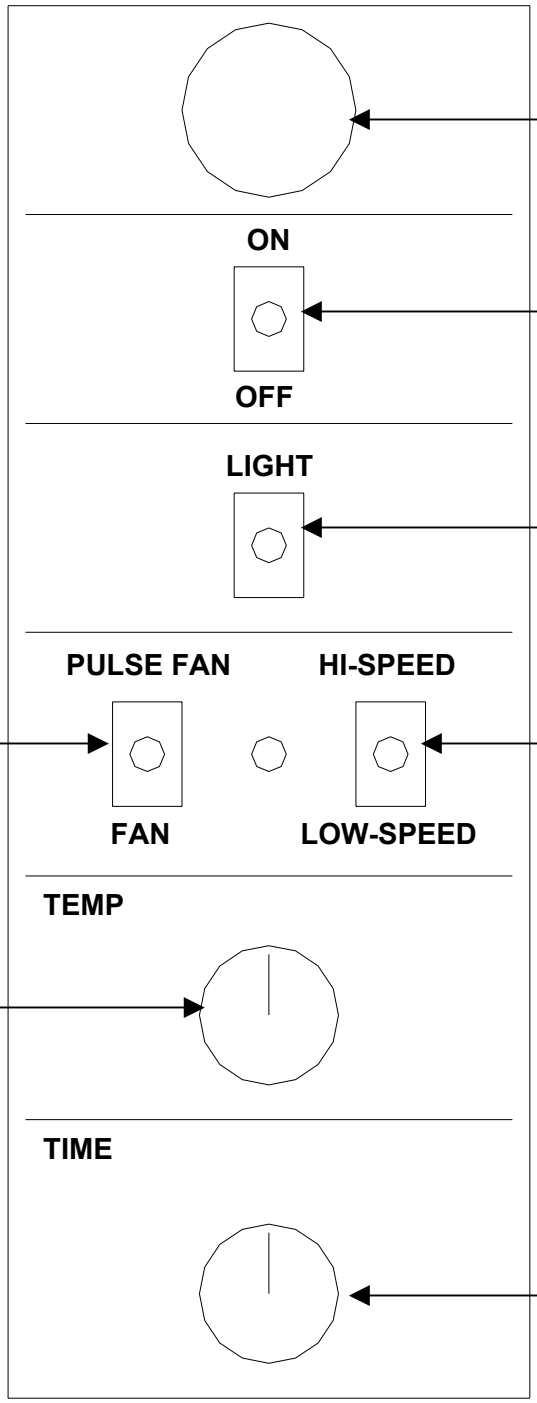
Pulse fan switch. Pulse fan setting will only turn the fan on when the oven is calling for heat.

Dual speed switch. Toggles the fan between high and low speed.

Temperature Control. Allows temperature to be set from 100°F - 450°F in 50°F.

Timer Control. Electronic one hour timer with continuous beeper.

CONTROL PANEL GCCO-AP



Vent Knob.

Power switch.

Light switch. Inspection light only. Push toggle switch to the up position to inspect product. Switch will automatically return to the off position.

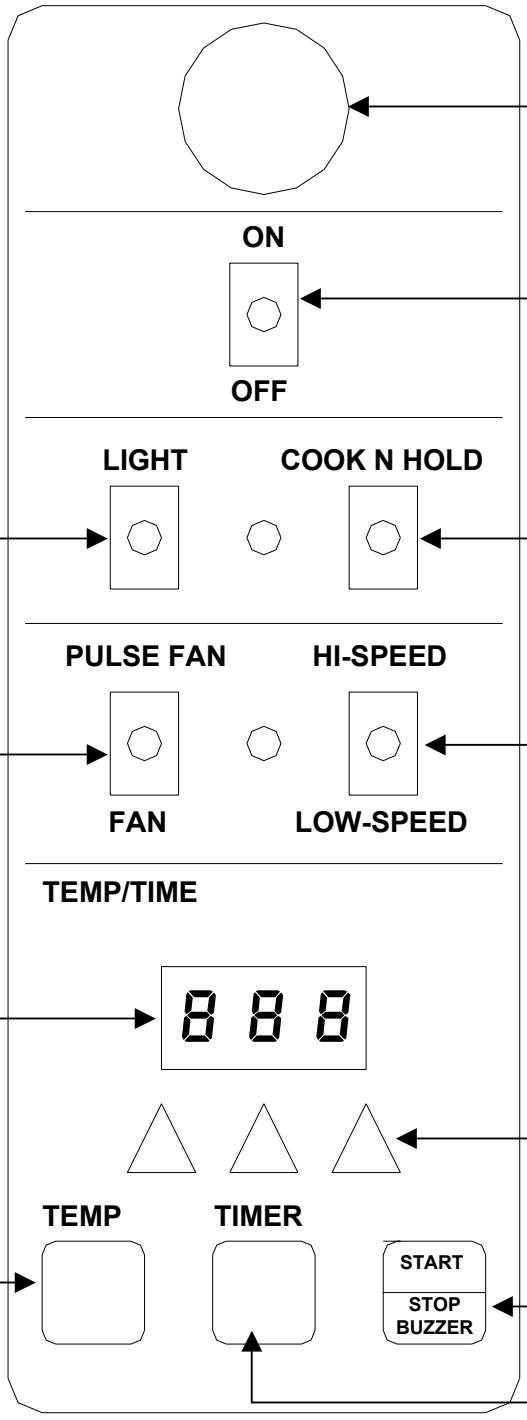
Pulse fan switch. Pulse fan setting will only turn the fan on when the oven is calling for heat.

Dual speed switch. Toggles the fan between high and low speed.

Temperature Control. Allows temperature to be set in 25°F increments from 140°F.

Timer Control. Electronic one hour timer with continuous beeper.

CONTROL PANEL GCCO-SII



Vent Knob.

Power switch.

Light switch. Inspection light only. Push toggle switch to the up position to inspect product. Switch will automatically return to the off position.

Cook N Hold switch. Oven will automatically drop to 140°F when oven timer stops timing down.

Pulse fan switch. Pulse fan setting will only turn the fan on when the oven is calling for heat.

Dual speed switch. Toggles the fan between high and low speed.

LED Display.

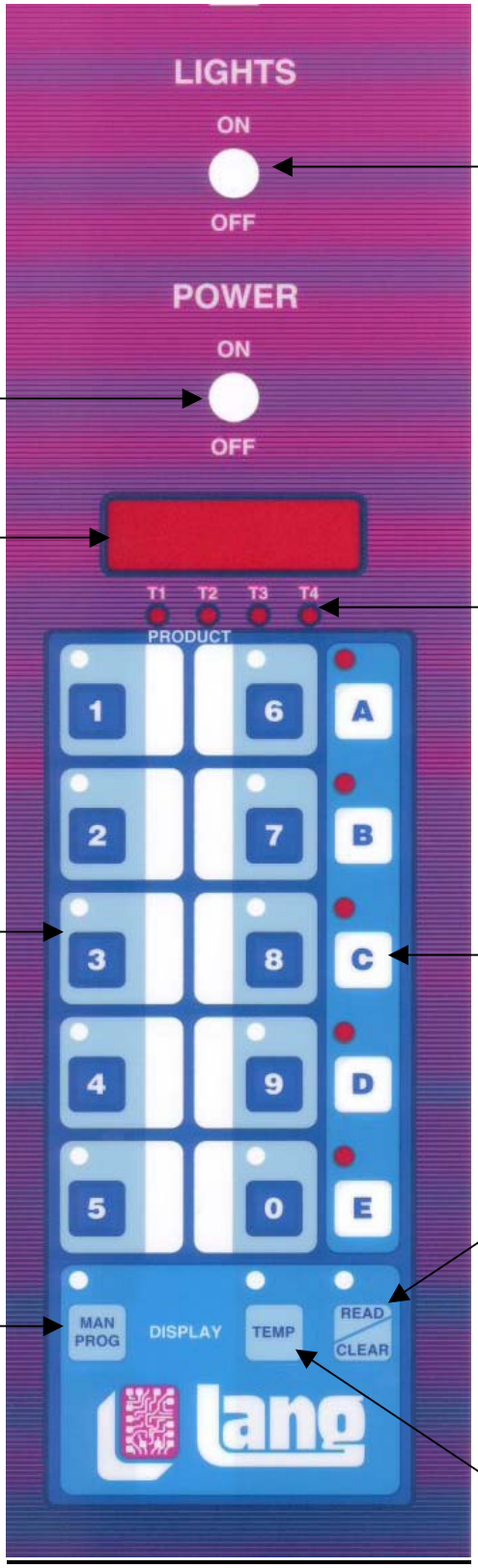
Adjustment Arrows. Adjusts the LED display for time and temp.

Temp Button. Press to set desired temp.

Start/Stop Button. Starts and stops the timer.

Timer Button. Press to set desired time.

CONTROL PANEL LAYOUT GCCO-C



Light switch

Power Switch

LED Display

Tier Indicator: Displays what Tier (cycle) of a certain program is running.

Product Button: Used to program and store product into the computer.

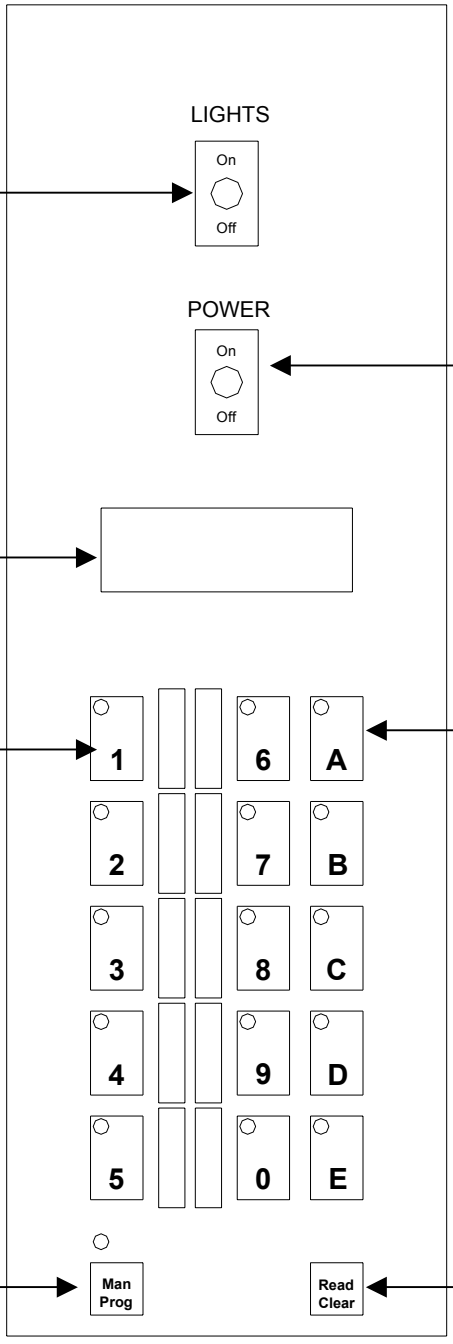
Shelf Button: Used to tell the oven which shelf the product is on.

Read/Clear Button: Used as a programming key.

Manual Program Button: Used to input a one time only program.

Temperature Button: Press at any time to display oven temperature.

CONTROL PANEL LAYOUT GCCO-PP



Light switch. Inspection light only. Push toggle switch to the up position to inspect product. Switch will automatically return to the off position.

Power switch.

AlphaNumeric Display.

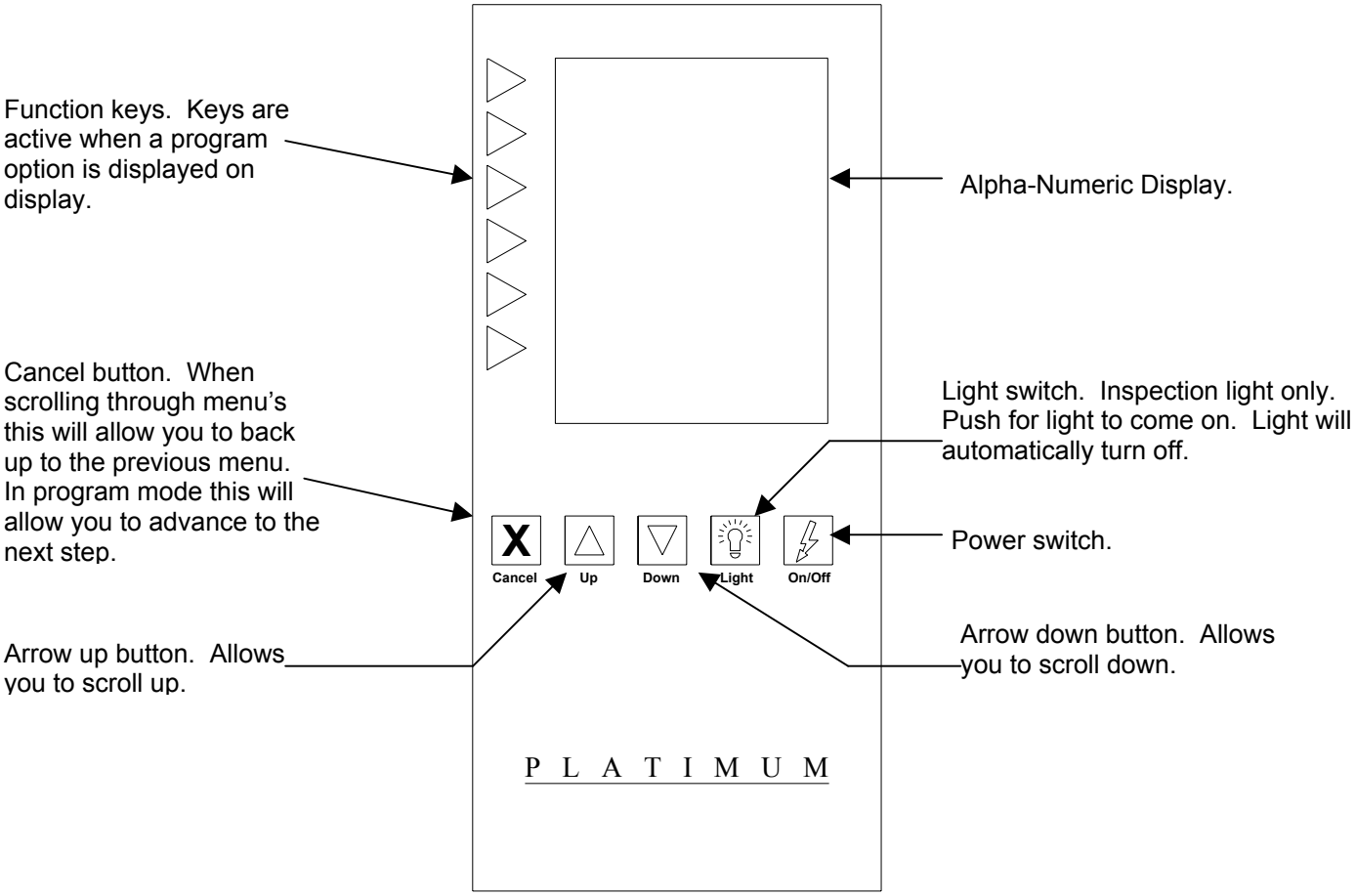
Product Select Button. Press to select desired product.

Shelf Select Button. Press to select shelf which product will be placed.

Manual Program Button. Use when product being cooked is for one time only.

Read/Clear Button. Used to read programs, clear programs, and to access program menu.

CONTROL PANEL LAYOUT GCCO-PT


Function keys. Keys are active when a program option is displayed on display.
Alpha-Numeric Display.
Cancel button. When scrolling through menu's this will allow you to back up to the previous menu. In program mode this will allow you to advance to the next step.
Light switch. Inspection light only. Push for light to come on. Light will automatically turn off.
Power switch.
Arrow up button. Allows you to scroll up.
Arrow down button. Allows you to scroll down.
X
Cancel
Up
Down
Light
On/Off
P L A T I M U M

Control Panel Buttons

1 -0 Product Buttons. These are the buttons where the product programs are stored. Pressing a Product Button will heat the oven to the programmed temperature.

A - E Shelf Buttons. The control is capable of timing each shelf individually. Pressing a Product Button then a Shelf Button will start the countdown timer.

MAN PROG The MANUAL PROGRAM button allows the operator to enter a temporary product program without being required to input the programming code. The temporary program is erased when the oven is turned off or when a new program is entered. Time and temperature are the only parameters that can be entered in the Manual Program mode.

READ/CLEAR The READ/CLEAR button has several functions.

- It is always the first button pressed when entering programming codes.
- Pressing it twice then pressing a Product Button will "read-back" the program in that product button.
- Pressing and holding the button down until "88888" appears in the display will cancel the current mode of the control and return the display to "EntEr".

Temp When the Temperature Recall Button is pressed, the display will indicate the internal oven temperature. When released the display will revert to the previous readout.

Programming Terms

Cooking Curve Cooking curve is a function of the computer that controls the cooking time. If the temperature of the oven is lower than the programmed temperature, the control will slow the timer down to compensate for the lower cooking temperature. Cooking Curves from 0 - no time adjustment to 7 - maximum adjustment are available. Cooking Curve 3 is the most commonly used. However, as a general rule the longer the cooking time the lower the cooking curve, the shorter the cooking time the higher the cooking curve.

FAN FUNCTION The convection fan has two programmable options. Fan On (Fan 1) runs the convection fan continuously. Fan Off (Fan 0) leaves the fan off until heat is called for by the control. In a convection oven, the fan must come On whenever the heat comes On. The convection fan can not be turned Off continuously.

TIER "Tiered" programming is the ability to change the cooking temperature or fan function during the cooking cycle. As an example, some products require the fan to be Off for the first half of the cooking cycle then turn On for the last half, Tier 1 would be programmed with the fan in the Off mode then Tier 2 would be fan On. The Tier lamps located below the display (labeled T1, T2, T3, and T4) will illuminate to indicate which Tier is being programmed or which Tier the program is in during the cooking cycle.

PROGRAMMING

ACTION	DISPLAY
Turn the power switch on. If the oven is already on, turn it off and then back on.	EntEr
Quickly enter access code **"R/C 1 6 2 7 3 8".** Do not hold the **R/C** button.	Prod
Select a Product number from **0-9**.	St: 00
Select amount of time that product should steam. If no steam is required press the shelf "A" button to advance to the next step. **Note:** If oven is not strapped for steam convection then this step will not be provided.	000°F
Select a Temperature from **150°F-450°F**. NOTE: Entering **"000"** will erase the existing program.	cc0-7
Select the desired cooking curve from 0-7.	FAno 12
Enter a desired Fan setting. **"0" (noFAn)** Will make the fan pulse with the heat. **" 1" (FAnonh 1)** Will make the fan run on high continuously. **"2" (FAnonLo)** Will make the fan run on low continuously.	00: 00: 00
Enter the desired cooking time (hours:minutes:seconds)	000°F
The program is now entered for a single tier program, press the **"E"** button to continue programming other products. If the program is a multi tiered program continue by programming the next tiers. When complete press the **"E"** button.	Prod
When the programs have been completely entered press the **"R/C"** button to save and exit the programming cycle.	EntEr

GCCO-C STATUS DISPLAY

The Status Display informs the operator of the oven's status.

It can be used as a countdown timer, shelf in use or internal oven temperature display during the cooking cycle (see GCCO-C Programming Codes).

The Display informs the operator when the oven is ready to bake, or if the oven is above or below the programmed temperature.

Below is a list of displays and their definitions:

"EntEr"	The oven is energized and ready for an operator command.
"PrEht"	Stands for **"PREHEAT"**. A product has been selected and the oven is heating to the programmed temperature.
"rEAdy"	A product has been selected and the oven has preheated to the programmed temperature. The oven is ready to load a product.
"cooL"	The oven's internal temperature is below what is programmed.
"hot"	The oven's internal temperature is above what is programmed.
"ShELF"	A product selection has been made after the oven has preheated and the computer is asking which shelf the product is placed on.
"hELP"	There is a fault in the control system, the computer will not operate until service is performed.
"cont"	Stands for **"CONTINUOUS"**. The oven has been programmed without a time being entered. The oven will operate continuously at the programmed temperature.
"Error"	An entry has been made during the programming, which the computer does not understand.

GCCO-C PROGRAMMING CODES

Below are codes, which will allow you to configure the display or aid in the operation, and troubleshooting of the oven.
The readout must display **"ENTER"** before the computer will accept any programming code. If the readout displays any other word, reset the computer by pressing and holding the **"R/C"** button until display reads **"88888"** then release. Display should now read **"ENTER"**.
The control allows for a 3-second delay between each button push, if a delay of longer than 3 seconds has occurred, the programming code must be re-entered.
The instructions call for pressing exactly what is shown under "PRESS".

CODE DESCRIPTION	PRESS
• **OPERATIONAL**	
Recall time remaining on a shelf	Shelf
Cancel a shelf timer	R/C, R/C, Shelf
• **DISPLAY MODES**	
Countdown timer display	R/C,4,8,4,8,4,8
Shelf in use display	R/C,0,9,0,9,0,9
Internal oven temperature display	R/C,8,7,8,7,8,7
• **PROGRAMMING**	
Enter programming mode	R/C,1,6,2,7,3,8
Recall an existing product program	R/C, R/C, P (Product programmed)
Erase a product program	R/C,1,6,2,7,3,8 (P) (000)
Model identification	R/C, D,C,D,C,D,C
Fan Setting (HI or Both)	R/C,E,D,C,B,A,1(high),2 (both)
Program download (Contact Factory)	R/C, A, B, C, D, E, P
• **MAINTENANCE**	
Actual oven temperature	R/C,3,4,5,6,7,8
Return to ENTER	R/C
• **SHELF COMPENSATION**	
Enter shelf compensation mode	R/C, C, B, C, B, C, B
Set shelf compensations	(I.E.) A,2,3,A
Return to ENTER	R/C

ACTION	DISPLAY
Turn the power switch on. If the oven is already on, press the Read / Clear key until the following screen is displayed.	**SELECT PRODUCT OR READ/CLEAR TO PROGRAM XX:XXPM XXXF**
Enter access code "**1 6 2 7 3 8".**	**A: SET TIME B: SET DATE C: PROGRAM PRODUCTS D: NEXT MENU**
Select **"C".**	**PRODUCT PROGRAM MODE SELECT PRODUCT NUMBER 1-9**
Select a number from 0-9 and press the key corresponding to that number.	**EDIT PRODUCT? 1=EDIT OR 2=DELETE NXX TX XXXF CX XX:XX:XX PXXX F-XX**
If a product Key selected already has a program, the screen will read.	**ENTER COOKING TEMP 100 TO 450 F NOX T1 XXXF**
Enter a desired cooking / baking temperature. The screen will automatically advance to the next display.	**ENTER COOKING TIME HR:MIN:SEC NOX T1 XXXF CO**
Enter the cooking time and then press **"E"** to advance to the next screen.	**ENTER COOKING CURVE 0 TO 100% NOX T1 XXXF CXX XX:XX:XX PXXX F-XX**
Enter the desired cooking curve. (Refer to sections 6.3 and 6.7 for more detail)	**ENTER FAN SPEED 1=HI 2=LOW NOX T1 XXXF CXX XX:XX:XX PXXX F-XX**
Select Fan speed. (Hi=1700 rpm, Low=1400)	**ENTER FAN PULSE RATE 1 TO 100% NOX T1 XXXF CXX XX:XX:XX PXX F-XX**
Select Fan Pulse rate. (0 to 100%). 0=off unless calling for heat. 100=on at all time. **NOTE:** Any number between 0-100 means that the fan will be on that many number of seconds in a 100-second block. (E.g. 67%= on for 67 seconds in a 100 second block)	**CONTINUE TO TIER 2 1=YES 2=NO NOX T1 XXXF CXX XX:XX:XX PXXX F-XX**
If your press 1 you will go through the same sequence as outlined above. If you press 2 the next display will automatically appear.	**A: SET TIME B: SET DATE C: PROGRAM PRODUCTS D: NEXT MENU**

ACTION	DISPLAY
Step 1. Turn the power switch on. If the oven is already on, press the **"CANCEL"** key until the following screen is displayed. Step 2. Select: **⮜ TIME / DATE / PROGRAM.**	 **⮜ RUN OVEN** **⮜ TIME / DATE / PROGRAM** **TIME DATE TEMP STATUS** **12:00 01/01/01 325 STANDBY**

ACTION	DISPLAY
Step 3. Select : **⮜ PROGRAM COMPUTER**	**⮜ DISPLAY PRODUCT** **⮜ TIMER ONLY** **⮜ SET TIME / DATE** **⮜ PROGRAM COMPUTER** **TIME DATE TEMP STATUS** **12:00 01/01/01 325 PROGRAM**

ACTION	DISPLAY
Step 4. Using the ⮝ and ⮟ arrows, enter access code **"A B C D E F"** Press ⮝ or ⮟ to scroll through letters and numbers, then select "**ENTER**" to move the cursor to the right. *EXAMPLE: Press ⮝ once for an "**A**", then press "**ENTER**". Press ⮝ twice for a "**B**", then select "**ENTER**". Continue through "**F**". The screen will then automatically advance once access code has been entered correctly.*	**ENTER ACCESS CODE** **A** **USE ⮝⮟ KEYS TO SELECT** **THEN PRESS ENTER** **⮜ ENTER** **PRESS CANCEL TO QUIT**

ACTION	DISPLAY
Step 5. Select: **PROGRAM PRODUCTS**	**PROGRAM PRODUCTS** **EDIT READY ZONE** **EDIT ACCESS CODE** **ENABLE MANUAL PRODUCT** **CONFIGURE TIME OF DAY**

ACTION	DISPLAY
Step 6. Select: **CREATE NEW PRODUCT**	**CREATE NEW PRODUCT** **EDIT PRODUCT** **DELETE PRODUCT** **EDIT PRODUCT**

ACTION	DISPLAY
Step 7. "**SELECT PRODUCT ICON**" is the first screen when creating a product program. Press ⋎ until you find an icon that best resembles your product. If necessary, press ⋏ to go backward through the icon list. Select "**ENTER**" to accept the icon, and more to the next screen	**SELECT PRODUCT ICON** **USE ⋏⋎ KEYS TO SELECT THEN PRESS ENTER TO ACCEPT** **APPETIZER A** **ENTER**

ACTION	DISPLAY
Step 8. "**SELECT PRODUCT NAME**" is where you spell the name using the ⮝ or ⮟ to select each letter. Then select "**ENTER**" to move the cursor to the next space and select a new letter. NOTE: "**APPETIZER A**" is the name that must be replaced with the new product name or blanks, when the product name is shorter than "**APPETIZER A**". *EXAMPLE: "**APPLE**" replaces only **APPET**, **IZER A** must be replace by blanks. A blank can be found before "A" or after "9" when scrolling.*	**SELECT PRODUCT NAME** **APPETIZER A** **USE ⮝⮟ KEYS TO SELECT** **APPETIZER A** ⮜ **ACCEPT** ⮜ **ENTER**

ACTION	DISPLAY
Step 9. "**SELECT PRODUCT TEMPERATURE**" Press the ⮝ or ⮟ to select a number. Then select "**ENTER**" to move the cursor to the next space and select a new number. The screen will automatically advance after you enter the last number. *EXAMPLE: (320) Press ⮝ three times for a "3", then select "**ENTER**" to advance the cursor. Press ⮝ two times for a "2", then select "**ENTER**" to advance the cursor. Since "0" is already displayed just select "**ENTER**" to advance to the next screen.*	**SELECT PRODUCT TEMPERATURE** **100** **USE ⮝⮟ KEYS TO SELECT** **APPLE** **TIER 1** ⮜ **ACCEPT** ⮜ **ENTER**

ACTION	DISPLAY
Step 10. "**SELECT TIER COOK TIME**". Time is entered in hours:minutes:seconds. The maximum is 12:59:59. Select "**ENTER**" to advance cursor to the place you want to enter a number. *EXAMPLE: (45 minutes:00 seconds) Select "ENTER" twice to advance from hours to minutes, then press ⮝ four times for a "4", then select "ENTER" to advance the cursor. Then press ⮝ five times for a "5", then select "ENTER" to advance the cursor. Since "0" is the next two numbers simply select "ENTER" again twice to advance the cursor.*	**SELECT TIER COOK TIME** **00:45:00** **USE ⮝⮟ KEYS TO SELECT** **APPLE** **TIER 1** **TEMP: 320F** ⮜ **ACCEPT** ⮜ **ENTER**

ACTION	DISPLAY
Step 11. "**SELECT COOKING CURVE**". Press ⮜ or ⮟ to select numbers, select "**ENTER**" to move the cursor to the next space. Cooking curve may be any number between 0% and 100%. *EXAMPLE: (80%) Select "ENTER" once to advance the cursor one space, then press ⮜ eight times for a "8". Select "ENTER to advance the cursor. Since "0" is the next number, select "ENTER" to advance to the next screen.*	**SELECT COOKING CURVE** **000 %** **USE ⮜⮟ KEYS TO SELECT** **APPLE** **TIER 1** **TEMP: 320F TIME: 00:45:00** ⮜ **ACCEPT** ⮜ **ENTER**

ACTION	DISPLAY
Step 12. "**SELECT FAN SPEED**". The cursor will automatically appear under **HIGH**, that is your default setting. Press "**ENTER** or **ACCEPT**" to keep high fan and advance to the next screen. If **LOW** is the correct setting press the ⮜ or ⮟ to move the cursor to low. Once low is selected, select "**ENTER** or **ACCEPT**" to move to the next screen.	**SELECT FAN SPEED** **HIGH** **LOW** **USE ⮜⮟ KEYS TO SELECT** **APPLE** **TIER 1** **TEMP: 320F TIME: 00:45:00** **COOKING CURVE: 80 %** ⮜ **ACCEPT** ⮜ **ENTER**

ACTION	DISPLAY
Step 13. "**SELECT PULSE RATE**". Press ⮝ or ⮟ to select numbers, select "**ENTER**" to move the cursor to the next space. 100% is the default. If this okay, select "**ENTER**" three times or "**ACCEPT**" to advance to the next screen. *EXAMPLE: (80%) Press the ⮟ once for "0". Select "ENTER" once to advance the cursor one space, then press ⮝ eight times for a "8". Select "ENTER to advance the cursor. Since "0" is the next number, select "ENTER" to advance to the next screen.*	**SELECT PULE RATE** **100 %** **USE ⮝⮟ KEYS TO SELECT** **APPLE** **TIER 1** **TEMP: 320F TIME: 00:45:00** **FAN: HI** **COOKING CURVE: 80 %** ⮜ **ACCEPT** ⮜ **ENTER**

ACTION	DISPLAY
Step 14. "**CORRECT**". The cursor automatically appears on "**YES**". The computer is asking if the program displayed is correct. If any part of that program is incorrect, press ⮝ or ⮟ till the cursor is on "**NO**". Select "**ENTER**" or "**ACCEPT**". This will return you to step 7. Selecting "**YES**" will advance the sceen."**NO**".	**CORRECT?** **YES** **NO** **USE ⮝⮟ KEYS TO SELECT** **APPLE** **TIER 1** **TEMP: 320F TIME: 00:45:00** **FAN: HI RATE: 100 %** **COOKING CURVE: 80 %** ⮜ **ACCEPT** ⮜ **ENTER**

ACTION	DISPLAY
Step 15. "**CONTINUE TO NEXT TIER**". The cursor automatically appears on "**NO**". Select "**ENTER**" or "**ACCEPT**" to end programming or move the cursor with the ⮝ or ⮟ to "**YES**". This will allow you to enter another tier to this program. Repeat steps 6-14 to program second tier.	**CONTINUE TO NEXT TIER** **YES** **NO** **USE ⮝⮟ KEYS TO SELECT** **APPLE** **TIER 1** **TEMP: 320F TIME: 00:45:00** **FAN: HI RATE: 100 %** **COOKING CURVE: 80 %** ⮜ **ACCEPT** ⮜ **ENTER**

ACTION	DISPLAY
Step 16. After programming the last tier, select "**NO**" when asked "**CONTINUE TO NEXT TIER**" the computer will automatically advance the screen to program more products. If no other products need to be programmed, select "CANCEL" three times to advance screen to the boot up screen.	⮜ **CREATE NEW PRODUCT** ⮜ **EDIT PRODUCT** ⮜ **DELETE PRODUCT** ⮜ **EDIT PRODUCT**

ACTION	DISPLAY
Step 17. You may now preheat the oven for any products you have programmed. Step 18. Select: ⮜ **Run oven**	Lang ⮜ **RUN OVEN** ⮜ **TIME / DATE / PROGRAM** **TIME DATE TEMP STATUS** **12:00 01/01/01 325 STANDBY**

OPERATIONS

Convection ovens constantly circulate air over the product. This strips away the thin layer of moisture and cool air from the top of the product. Heat penetrates more quickly. Cooking times are shortened and cooking temperatures are usually reduced.
To convert standard deck oven recipes to convection oven recipes, reduce the temperature 50 °F and the time by 25%. Make adjustments as necessary, depending upon your results. The lower the temperature the more even the bake.
Check the product halfway through the baking cycle. Look through the door windows. Opening the oven door is not recommended.
If products are brown on the outside and not done on the inside, too high a temperature is being used. Decrease the temperature 15-25 °F.
If products are pulling to the edge of pans or spilling, the oven is not leveled or the pans are warped. Correct as necessary.
Load each shelf evenly. Spaces should be maintained equally between the pan and walls. Front and back. This will allow an even distribution of airflow.

BAKING

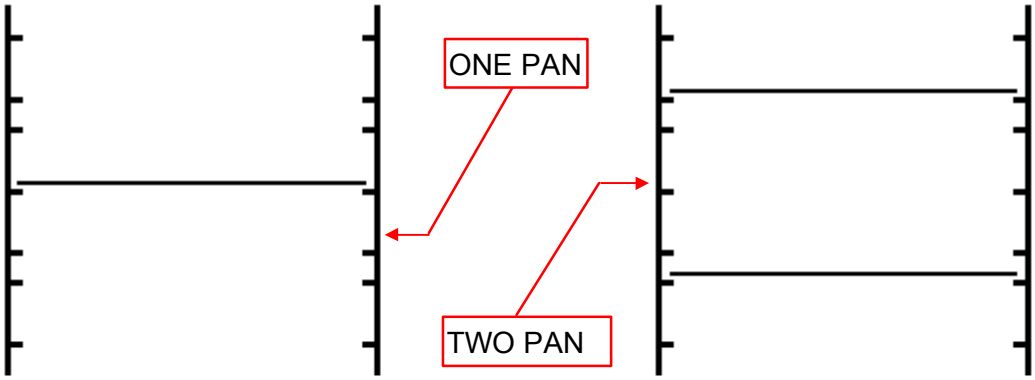
Most baking should be done with the vent closed. Open the vent only with high moisture products to avoid seepage around the front of the door.
Always weigh your product. This will give you a more consistent size, color and quality.
Center the pan in the oven. The better the air flow around the product, the better the bake.
The convection oven is a mechanical piece of equipment. The same control settings will always give the same results. If the results vary, problems may be because of preparation, not the oven.

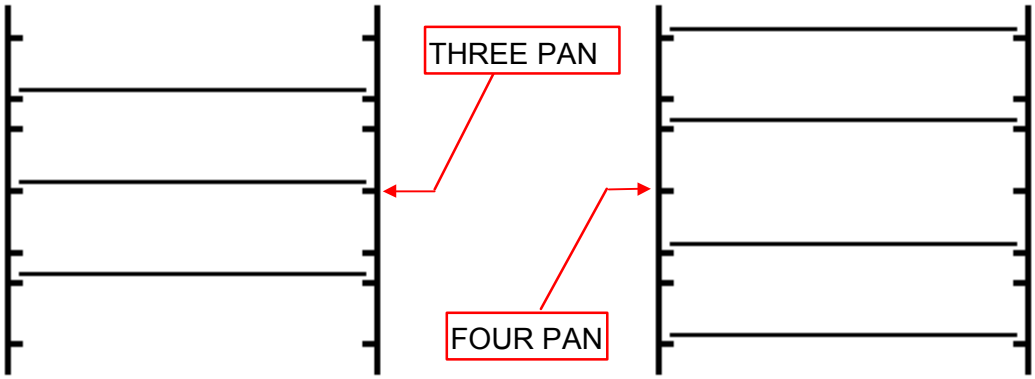
LOADING

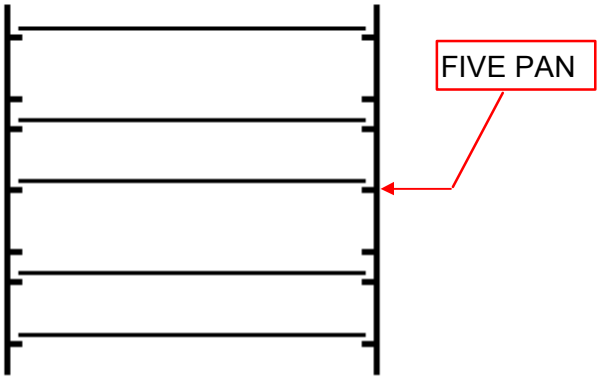
Place product as close to oven as practical. Open oven doors and load quickly but carefully.
If only one pan is required, load on center shelf. If two pans are required, load on second and fourth shelf. If three pans are required, load on top shelf, bottom shelf, and center shelf. If four pans are required, load on top shelf, bottom shelf, and middle two shelves. If five shelves are required, space evenly in oven. (See page 28 for more detail)

UNLOADING

It is a characteristic of all convection ovens to unload the top shelf before the bottom shelves. The rising of heat and the hot oven ceiling causes the top shelf to bake quicker. This characteristic is more pronounced when baking at higher temperatures and/or for prolonged periods of time.


ONE PAN
TWO PAN


THREE PAN
FOUR PAN


FIVE PAN

GCCO-AP TYPICAL OPERATION SEQUENCE

ACTION	RESULT
Turn power switch to ON.	Control panel heat call light comes on.
Adjust proper temperature, between 140 & 450 degrees and allow to preheat up to 20 minutes.	Oven begins heating.
Open oven doors and insert product, set timer up to 60 minutes.	Timer begins counting down.
Timer beeps continuously when done.	Product should now be done.

GCCO-T TYPICAL OPERATION SEQUENCE

ACTION	RESULT
Turn power switch to ON.	
Adjust proper temperature, between 140 & 450 degrees and allow to preheat up to 20 minutes.	Oven begins heating.
Open oven doors and insert product, set timer up to 60 minutes.	Timer begins counting down.
Timer beeps continuously when done.	Product should now be done.

GCCO-SII TYPICAL OPERATION SEQUENCE

ACTION	RESULT
Turn power switch to ON.	Digital display reads "000" .
Press Temp button and use arrows to adjust to proper Temp between 150 & 450.	Oven begins heating and displays "PrE".
Beeper will sound for 3 seconds when preheated. Open doors and insert product.	Display will read preheated temperature.
Press Time Button and use arrows to adjust to desired time. Press Start / Stop Button.	Digital display will start countdown.
Beeper sounds continuously Press Start / Stop Button.	

GCCO-C TYPICAL OPERATION SEQUENCE

ACTION	RESULT
Turn power switch to ON.	Control panel comes on, display says **"88888"** and then **"EntEr"**, motor starts.
Press a product button.	Display says **"PrEht"** (Preheat), oven begins to heat to the programmed temperature.
Beeper sounds briefly.	Display says **"rEAdy"**.
Open the oven doors and load the product. Close the door and press the product button again.	Beeper sounds briefly and display says **"ShELF"**.
Press the shelf button(s) which correspond to the shelf positions which the product is loaded (A equals the top shelf and E equals the bottom shelf).	Display shows a countdown timer and begins to count toward zero.
Beeper sounds continuously.	Display shows **"donE"**, shelf button(s) flash.
Press the **flashing** shelf button(s).	Beeper stops. Display shows "rEAdy" if no other shelves carry product or resume count down for shelves that still have product cooking.
Open oven door and remove the product, which corresponds to flashing shelf button(s).	

GCCO-PP TYPICAL OPERATION SEQUENCE

ACTION	RESULT
Turn power switch to ON.	Control panel comes on, display says **"SELECT PRODUCT OR READ/CLEAR TO PROGRAM**.
Press a product button.	Display says **"PRODUCT X PREHEATING TO XXX F".** Motor starts and oven begins preheating to the programmed temperature.
Beeper sounds briefly.	Display says **"READY SELECT PRODUCT TO START "**.
Open the oven doors and load the product. Close the door and press the product button again.	Beeper sounds briefly and display says **"SELECT OVEN SHELVES PRODUCT X"**.
Press the shelf button(s) which correspond to the shelf positions just left, which the product is loaded (A equals the top shelf and E equals the bottom shelf).	Display shows a countdown timer and begins to count toward zero.
Beeper sounds continuously.	Display shows **"DONE PRESS SHELF BUTTON X, REMOVE PRODUCT"**, shelf button(s) flash.
Press the **flashing** shelf button(s).	Beeper stops. Display shows "**READY SELECT PRODUCT TO START**" if no other shelves carry product or resume count down for shelves that still have product cooking.
Open oven door and remove the product, which corresponds to flashing shelf button(s).	

GCCO-PT TYPICAL OPERATION SEQUENCE

ACTION	RESULT
Press the on switch.	Control panel comes on, display says **"LANG, Run Oven, Time Date Program**.
Select **"Run Oven".**	Display will show a list of product to choose.
Select Product button next to Icon desired.	Display says **"Preheating to XXXF".**
Beeper sounds briefly.	Display says **"Ready".**
Select Product to start.	Display shows possible product selection for that temperature.
Select Product to start.	Display says **"Select shelf".**
Press Product button next to desired shelf.	Display will show icon chosen and begin to count down.
Beeper sounds continuously.	Display shows **" DONE"** press button and remove product from that shelf.
Oven is ready for another product.	

SEQUENCE OF OPERATION GCCO-T

Power to oven **light switch** .
120/24-volt **transformer** energized.
24 volts to **6** (Johnson Control), **TH** (Channel Products), and **ground** of **spark module.**

24 volts to pilot valve coil of **combination gas valve.**
Pilot valve opens.
Gas flows to **pilot burner.**
Pilot burner lights.

12 to 13 micro amps on pin **4** (Johnson Control), and **Sens** (Channel products).
24 volts from pin **3** (Johnson Control) and **MV** (Channel products) to isolation transformer.
24-volt isolation **transformer** energizes.
24 volts to pins 9 and 7 of **circuit board**.
24 volts to **motor relay** through door switch and pulse-fan switch.
Motor relay closes energizing motor and closing centrifugal switch.

24 volts from circuit board to **MV** on combination valve through pulse-switch, centrifugal switch, and over temperature thermostat.
Main burner ignites.

SEQUENCE OF OPERATION GCCO-AP

Power to oven **light switch** .
120/24-volt **transformer** energized.
24 volts to **6** (Johnson Control), **TH** (Channel Products), and **ground** of **spark module.**

24 volts to pilot valve coil of **combination gas valve.**
Pilot valve opens.
Gas flows to **pilot burner.**
Pilot burner lights.

12 to 13 micro amps on pin **4** (Johnson Control), and **Sens** (Channel products).
24 volts from pin **3** (Johnson Control) and **MV** (Channel products) to isolation transformer.
24-volt isolation **transformer** energizes.
24 volts to pins 9 and 7 of **circuit board**.
24 volts to **motor relay** through door switch and pulse-fan switch.
Motor relay closes energizing motor and closing centrifugal switch.

24 volts from circuit board to **MV** on combination valve through pulse-switch, centrifugal switch, and over temperature thermostat.
Main burner ignites.

SEQUENCE OF OPERATION GCCO-SII

Power to oven **light switch** .
120/24-volt **transformer** energized.
24 volts to **TH**, and **ground** of **spark module.**

24 volts to pilot valve coil of **combination gas valve.**
Pilot valve opens.
Gas flows to **pilot burner.**
Pilot burner lights.

12 to 13 micro amps on pin **4** (Johnson Control), and **Sens** (Channel products).
24 volts from pin **3** (Johnson Control) and **MV** (Channel products) to isolation transformer.
24-volt isolation **transformer** energizes.
24 volts to pins 1 and 2 of **circuit board**.
24 volts at motor out put (pin5) to ground.
24 volts to **motor relay** through door switch and pulse-fan switch.
Motor relay closes energizing motor and closing centrifugal switch.

24 volts at heat out put to ground.
24 volts from circuit board to **MV** on combination valve through pulse-switch, centrifugal switch, and over temperature thermostat.
Main burner ignites.

SEQUENCE OF OPERATION GCCO-C

Power to oven **light switch.**
120 volts to rows **"A"** and **"B"** of 24 pin **terminal block.**
120/24-volt **transformer** energized.
24 volts to rows **"C"** and **"D"** of 24 pin **terminal block.**
24 volts to common of **back-up toggle switch.**
24 volts to pin **"A"** on **back-up relay.**
24 volts to **6** (Johnson Control), **TH** (Channel Products), and **ground** of **spark module.**

24 volts to pilot valve coil of **combination gas valve.**
Pilot valve opens.
Gas flows to **pilot burner.**
Pilot burner lights.

12 to 13 micro amps on pin **4** (Johnson Control), and **Sens** (Channel products).
24 volts from pin **3** (Johnson Control) and **MV** (Channel products) to common of **back-up toggle switch.**

Circuit 1

24 volts across **"D"** and **TP4, TP5,** and **TP6.**
24 volts to **motor relay** through **door switch.**
Motor centrifugal switch closes.
Circuit 2
24 volts to terminal **"B"** on **back-up relay.**
Back-up relay closes, energizing **120/12 volt transformer.**
12 volts to **TP1.**
Computer starts.
Product selected from **Control panel.**
24 volts from **TP5** through safety thermostat, through centrifugal switch in motor, to main valve .coil of **gas combination valve.**
Main valve opens.
Gas flows to **main burners.**
Main burners light.

Circuit 1

24 volts to **motor relay.**
Motor relay closes.
Motor centrifugal switch closes.
Circuit 2
24 volts to **Back-up thermostat.**
Temperature set on **Back-up thermostat.**
24 volts from **Back-up thermostat** through safety thermostat, through centrifugal switch in motor to main valve coil of **Gas combination valve.**
Main valve opens.
Gas flows to **main burners.**
Main burners light.

120 VAC across “A” and “B” of 24 pin terminal block.
120 VAC across Common on light relay.
120 VAC across Common on cooling fan relay.
120 VAC to control transformer (120 / 24-12) and Component transformer (120 / 24).

24 VAC across JP1 and “C”.
24 VAC across “TH” and ground on spark module.
24 VAC across “PV” and ground on spark module.
24 VAC across “PV” on combination valve.
Pilot valve opens.
Pilot ignites.

12-13 micro-amps from “SENSE” on spark module.
24 VAC across “MV” on spark module.

24 VAC across JP12 and “C”.
24 VAC across motor relay coil.
Motor relay closes.
120 VAC to motor.

24 VAC across “MV” to ground on spark module.
24 VAC across JP 2 to “C”.
24 VAC to “MV” on combination valve (through centrifical switch on motor).
Main valve opens.
Main burner ignites.

24 VAC to “TH” on spark module.
24 VAC across “PV” on spark module to ground.
24 VAC to “PV” on combination valve.
Pilot valve opens.
Pilot ignites.

12-13 micro-amps from “SENSE” on spark module.
24 VAC across “MV” on spark module.
24 VAC to motor relay.
Motor relay closes.
120 VAC to motor.

24 VAC across “MV” to ground on spark module.
24 VAC across JP 2 to “C”.
24 VAC to “MV” on combination valve (through centrifical switch on motor).
Main valve opens.
Main burner ignites.

NO MOTOR

PROBABLE CAUSE	CORRECTIVE ACTION
Defective power switch	➢ Check power switch for normal operation. Replace as necessary.
Defective Transformer	➢ Check Transformer for normal operation.
Gas supply turned off	➢ Turn gas supply on and check for proper gas pressure. 5" water column for natural gas and 10" water column for propane.
Defective Pilot	➢ Perform the following "trial ignition" and look and listen for spark: Attempt to light the pilot burner. If the burner does not ignite after 30 seconds, cycle power and repeat "trial ignition". The pilot may require several trials for ignition to bleed air from the gas piping. After the ignition attempt, pilot should only require 2-5 seconds for normal start-up.
Spark observed	➢ Check for 24 VAC at pilot valve. **If 24 VAC is measured**, turn oven off: ➢ Check for pilot burner orifice blockage. Clean and repair as necessary. ➢ Perform trial ignition, as described in above section. ➢ Replace gas valve. **If 24 VAC is not measured:** ➢ Check for 24 VAC at PV on spark module. ➢ Check continuity on wire between PV on spark module and Pilot Valve.
No spark observed	Turn oven on. Refer to wiring diagram and check for 24 VAC at the TH terminal on the spark module. **If 24 VAC is measured.** Turn oven off: ➢ Check large orange wire from igniter module to pilot burner for continuity, and for insulation breaks. ➢ Replace wire as necessary. ➢ Check spark electrode and hood of pilot burner. ➢ Check spark gap. Clean and re-gap if necessary. ➢ Check pilot burner for any evidence of moisture. Dry pilot if necessary. ➢ Replace spark module if above checks do not correct problem. **If 24 VAC is not measured.** Turn oven off: ➢ Check 120/24 VAC transformer for 18.9 Ω on the primary coil and 1 Ωon the secondary coil. ➢ Turn unit back on and check primary coil for 120 VAC and secondary for 24 VAC. ➢ Replace transformer.

PROBABLE CAUSE	CORRECTIVE ACTION
Igniter continues to spark after pilot is lit	➢ Check pilot for strong flame and good contact with sensor. ➢ Check sense wire for 12 to 13 micro amps on spark module. (Johnson Control spark modules use "#4" terminal and Channel spark modules use "Sense" terminal). ➢ Turn oven off and check sense wire for continuity. ➢ Replace sense wire or spark module as necessary.
Defective Module	➢ Confirm that there is a pilot ignition. ➢ Check for 24VAC at "MV" to ground.
Defective Isolation Transformer	➢ Confirm that transformer is getting voltage. ➢ Check transformer for normal operation.
Defective Door switch	➢ Confirm that Door switch is getting voltage. ➢ Check door switch for normal operation.
Defective Motor relay	➢ Confirm that motor relay is getting power. ➢ Check motor relay for normal operation. (24 VAC 39 Ω)
Defective Motor	➢ Confirm that motor is getting power. ➢ Check motor for normal operation. (HIGH: P1-T7,T4) (LOW: P1-T9)

NO HEAT

NOTE: The motor needs to be operational before the oven will start heating.

PROBABLE CAUSE	CORRECTIVE ACTION
Defective Thermostat	➢ Confirm that Thermostat is getting 24 VAC. Measure between Thermostat terminal and **"D"** on the terminal block **If voltage is not present:** ➢ Check Transformer for normal operation. **If voltage is present:** ➢ Check thermostat for continuity. ➢ Replace as necessary.
Defective Centrifugal Switch	➢ Confirm that when motor is running that there is continuity through Centrifugal switch.
Defective Hi Limit Thermostat	➢ Check Hi Limit Thermostat for continuity.
Defective Solenoid Valve	➢ Confirm that Valve is getting voltage. ➢ Check Valve for normal operation.
Plugged Main Burner Orifice	➢ Clean orifice.

NO MOTOR

PROBABLE CAUSE	CORRECTIVE ACTION
Defective power switch	➢ Check power switch for normal operation. Replace as necessary.
Defective Transformer	➢ Check Transformer for normal operation.
Gas supply turned off	➢ Turn gas supply on and check for proper gas pressure. 5" water column for natural gas and 10" water column for propane.
Defective Pilot	➢ Perform the following "trial ignition" and look and listen for spark: Attempt to light the pilot burner. If the burner does not ignite after 30 seconds, cycle power and repeat "trial ignition". The pilot may require several trials for ignition to bleed air from the gas piping. After the ignition attempt, pilot should only require 2-5 seconds for normal start-up.
Spark observed	➢ Check for 24 VAC at pilot valve. **If 24 VAC is measured**, turn oven off: ➢ Check for pilot burner orifice blockage. Clean and repair as necessary. ➢ Perform trial ignition, as described in above section. ➢ Replace gas valve. **If 24 VAC is not measured:** ➢ Check for 24 VAC at PV on spark module. ➢ Check continuity on wire between PV on spark module and Pilot Valve.
No spark observed	Turn oven on. Refer to wiring diagram and check for 24 VAC at the TH terminal on the spark module. **If 24 VAC is measured.** Turn oven off: ➢ Check large orange wire from igniter module to pilot burner for continuity, and for insulation breaks. ➢ Replace wire as necessary. ➢ Check spark electrode and hood of pilot burner. ➢ Check spark gap. Clean and re-gap if necessary. ➢ Check pilot burner for any evidence of moisture. Dry pilot if necessary. ➢ Replace spark module if above checks do not correct problem. **If 24 VAC is not measured.** Turn oven off: ➢ Check 120/24 VAC transformer for 18.9 Ω on the primary coil and 1 Ωon the secondary coil. ➢ Turn unit back on and check primary coil for 120 VAC and secondary for 24 VAC. ➢ Replace transformer.

PROBABLE CAUSE	CORRECTIVE ACTION
Igniter continues to spark after pilot is lit	➢ Check pilot for strong flame and good contact with sensor. ➢ Check sense wire for 12 to 13 micro amps on spark module. (Johnson Control spark modules use "#4" terminal and Channel spark modules use "Sense" terminal). ➢ Turn oven off and check sense wire for continuity. ➢ Replace sense wire or spark module as necessary.
Defective Module	➢ Confirm that there is a pilot ignition. ➢ Check for 24VAC at "MV" to ground.
Defective Isolation Transformer	➢ Confirm that transformer is getting voltage. ➢ Check transformer for normal operation.
Defective Door switch	➢ Confirm that Door switch is getting voltage. ➢ Check door switch for normal operation.
Defective Motor relay	➢ Confirm that motor relay is getting power. ➢ Check motor relay for normal operation. (24 VAC 39 Ω)
Defective Motor	➢ Confirm that motor is getting power. ➢ Check motor for normal operation. (HIGH: P1-T7,T4) (LOW: P1-T9)

NO HEAT

NOTE: The motor needs to be operational before the oven will start heating.

PROBABLE CAUSE	CORRECTIVE ACTION
Defective Probe	➢ Confirm that probe is operating properly. (See Technical Data)
Defective Circuit board	➢ Confirm that Heat Call light is on. **If no light is detected:** ➢ Check 12-position switch for normal operation. (See Technical Data) **If light is detected:** ➢ Check for 24VAC across heat output and "D" on 12 Pole terminal. **If voltage is not present:** ➢ Replace Circuit board. **If voltage is present:** ➢ Check over temperature thermostat for proper operation. ➢ Check door switch for normal operation.
Defective Centrifugal Switch	➢ Confirm that when motor is running that there is continuity through Centrifugal switch.
Defective Hi Limit Thermostat	➢ Check Hi Limit Thermostat for continuity.
Defective Solenoid Valve	➢ Confirm that Valve is getting voltage. ➢ Check Valve for normal operation.
Plugged Main Burner Orifice	➢ Clean orifice.

NO MOTOR

PROBABLE CAUSE	CORRECTIVE ACTION
Defective power switch	➢ Check power switch for normal operation. Replace as necessary.
Defective Transformer	➢ Check Transformer for normal operation.
Gas supply turned off	➢ Turn gas supply on and check for proper gas pressure. 5" water column for natural gas and 10" water column for propane.
Defective Pilot	➢ Perform the following "trial ignition" and look and listen for spark: Attempt to light the pilot burner. If the burner does not ignite after 30 seconds, cycle power and repeat "trial ignition". The pilot may require several trials for ignition to bleed air from the gas piping. After the ignition attempt, pilot should only require 2-5 seconds for normal start-up.
Spark observed	➢ Check for 24 VAC at pilot valve. **If 24 VAC is measured**, turn oven off: ➢ Check for pilot burner orifice blockage. Clean and repair as necessary. ➢ Perform trial ignition, as described in above section. ➢ Replace gas valve. **If 24 VAC is not measured:** ➢ Check for 24 VAC at PV on spark module. ➢ Check continuity on wire between PV on spark module and Pilot Valve.
No spark observed	Turn oven on. Refer to wiring diagram and check for 24 VAC at the TH terminal on the spark module. **If 24 VAC is measured.** Turn oven off: ➢ Check large orange wire from ignitor module to pilot burner for continuity, and for insulation breaks. ➢ Replace wire as necessary. ➢ Check spark electrode and hood of pilot burner. ➢ Check spark gap. Clean and regap if necessary. ➢ Check pilot burner for any evidence of moisture. Dry pilot if necessary. ➢ Replace spark module if above checks do not correct problem. **If 24 VAC is not measured.** Turn oven off: ➢ Check 120/24 VAC trasformer for 18.9 Ω on the primary coil and 1 Ωon the secondary coil. ➢ Turn unit back on and check primary coil for 120 VAC and secondary for 24 VAC. ➢ Replace transformer.

PROBABLE CAUSE	CORRECTIVE ACTION
Igniter continues to spark after pilot is lit	➢ Check pilot for strong flame and good contact with sensor. ➢ Check sense wire for 12 to 13 micro amps on spark module. (Johnson Control spark modules use "#4" terminal and Channel spark modules use "Sense" terminal). ➢ Turn oven off and check sense wire for continuity. ➢ Replace sense wire or spark module as necessary.
Defective Module	➢ Confirm that there is a pilot ignition. ➢ Check for 24VAC at "MV" to ground.
Defective Isolation Transformer	➢ Confirm that transformer is getting voltage. ➢ Check transformer for normal operation.
Defective Circuit board	➢ Check for 24 VAC across Motor output on board and "D" on 12-position terminal block. **If no voltage is present:** ➢ Confirm that voltage is coming in from transformer. ➢ Replace circuit board. **If voltage is present:** ➢ Check motor relay for normal operation. (24 VAC 35Ω) ➢ Check door switch for normal. ➢ Check motor for normal operation. (See Technical Data)

NO HEAT

NOTE: The motor needs to be operational before the oven will start heating.

PROBABLE CAUSE	CORRECTIVE ACTION
Defective Probe	➢ Confirm that probe is operating properly. (See Technical Data)
Defective Circuit board	➢ Confirm that Heat Call light is on. **If no light is detected:** ➢ Check 12-position switch for normal operation. (See Technical Data) **If light is detected:** ➢ Check for 24VAC across heat output and "D" on 12 Pole terminal. **If voltage is not present:** ➢ Replace Circuit board. **If voltage is present:** ➢ Check over temperature thermostat for proper operation. ➢ Check door switch for normal operation.
Defective Centrifugal Switch	➢ Confirm that when motor is running that there is continuity through Centrifugal switch.
Defective Hi Limit Thermostat	➢ Check Hi Limit Thermostat for continuity.
Defective Solenoid Valve	➢ Confirm that Valve is getting voltage. ➢ Check Valve for normal operation.
Plugged Main Burner Orifice	➢ Clean orifice.

- To help troubleshoot the oven you should perform the following “Manual Override” test:
- Open drop down door located on the lower right side, directly below front panel.
- Turn back up toggle (on/off) switch to “on” position.
- Turn main power switch to “on” position.
- Check oven for normal operation.

NO DISPLAY

PROBABLE CAUSE	CORRECTIVE ACTION
Power switch is not turned on	➢ Turn power switch on.
Defective power switch	➢ Check power switch for normal operation. Replace as necessary.
Defective back-up relay	➢ Check relay for normal operation. ➢ Check coil for 24 VAC. **If 24 VAC is measured.** Turn oven off and: ➢ Check coil for 80 Ω. ➢ Replace as necessary. **If 24 VAC is not measured.** ➢ Verify that manual override switch is in “off” position. ➢ Check manual override switch for normal operation. ➢ Check wires for any shorts.
Gas supply turned off	➢ Turn gas supply on and check for proper gas pressure. 5” water column for natural gas and 10” water column for propane.
Pilot light fails to light	➢ Perform the following “trial ignition” and look and listen for spark: Attempt to light the pilot burner. If the burner does not ignite after 30 seconds, cycle power and repeat “trial ignition”. The pilot may require several trials for ignition to bleed air from the gas piping. After the ignition attempt, pilot should only require 2-5 seconds for normal start-up.
Spark observed	➢ Check for 24 VAC at pilot valve. **If 24 VAC is measured**, turn oven off: ➢ Check for pilot burner orifice blockage. Clean and repair as necessary. ➢ Perform trial ignition, as described in above section. ➢ Replace gas valve. **If 24 VAC is not measured:** ➢ Check for 24 VAC at PV on spark module. ➢ Check continuity on wire between PV on spark module and Pilot Valve.

PROBABLE CAUSE	CORRECTIVE ACTION
No spark observed	Turn one on. Refer to wiring diagram and check for 24 VAC at the TH terminal on the spark module. **If 24 VAC is measured.** Turn oven off: ➢ Check large orange wire from igniter module to pilot burner for continuity, and for insulation breaks. ➢ Replace wire as necessary. ➢ Check spark electrode and hood of pilot burner. ➢ Check spark gap. Clean and re-gap if necessary. ➢ Check pilot burner for any evidence of moisture. Dry pilot if necessary. ➢ Replace spark module if above checks do not correct problem. **If 24 VAC is not measured.** Turn oven off: ➢ Check 120/24 VAC transformer for 18.9 Ω on the primary coil and 1 Ωon the secondary coil. ➢ Turn unit back on and check primary coil for 120 VAC and secondary for 24 VAC. ➢ Replace transformer.
Igniter continues to spark after pilot is lit	➢ Check pilot for strong flame and good contact with sensor. ➢ Check sense wire for 12 to 13 micro amps on spark module. (Johnson Control spark modules use "#4" terminal and Channel spark modules use "Sense" terminal). ➢ Turn oven off and check sense wire for continuity. ➢ Replace sense wire or spark module as necessary.
Defective back-up relay	➢ Check relay for normal operation (on GCCO ovens relay will be energized in computer mode). ➢ Check coil for 24 VAC. **If 24 VAC is measured.** Turn oven off and: ➢ Check coil for 80 Ω. ➢ Replace if necessary. **If 24 VAC is not measured.** ➢ Verify that back up switch is in "off" position. ➢ Check back-up switch for normal operation. (DPDT) ➢ Check any wires for short.

PROBABLE CAUSE	CORRECTIVE ACTION
Defective control transformer (12 VAC).	➢ Check transformer for normal operation. ➢ Check primary coil for 120 VAC and 154.1 Ω. Check secondary coil for no less than 10.5 VAC and 1 Ω. **If voltage is measured on primary:** ➢ Check for voltage on secondary. ➢ Replace transformer. **If voltage is not measured on primary:**
Defective rectifier	➢ Check wires for any shorts. ➢ Check for no less than 10.5 VAC on **TP1** and 5 VDC on **TP2**. ➢ If correct voltage is present at **TP1** and present, but low at **TP2** unplug both ribbon connections from CPU and re-measure at **TP2**. ➢ If voltage remains low at **TP2** replace CPU (40102-311). ➢ If voltage at **TP2** increased to 5 VDC when ribbon was unplugged, plug ribbon back in to CPU and disconnect from Interface board. ➢ Re-measure at **TP2**. ➢ If voltage dropped to below 5 VDC replace ribbon cable (31110-01). ➢ If voltage remains at 5 VDC, plug ribbon back into Interface board and measure for 5 VDC at **TP3.** ➢ If voltage is present at **TP3** and display is still not on, press and hold the **R/C** button on board if LED's come on replace Interface board. ➢ If LED segment does not illuminate or the LED is blank, replace LED.

Note: Display should now be operating.

NO FAN-Manual Mode

PROBABLE CAUSE	CORRECTIVE ACTION
Defective 120/24 VAC transformer	➢ Check for 24 VAC on "C" and "D" of the terminal block. **If 24 VAC is not measured:** Turn off and: ➢ Check secondary coil for 1 Ω. ➢ Check primary coil for 18.9 Ω. ➢ Replace transformer. **If 24 VAC is measured:** Turn off and: ➢ Check back-up relay for normal operation.
Back-up relay not energizing	➢ Check for 24 VAC on relay coil. **If 240 VAC is measured:** Turn unit off and: ➢ Check back-up relay coil for 80 Ω. ➢ Replace if defective. **If 240 VAC is not measured:** ➢ Check back-up switch (SPDT) for normal operation. ➢ Replace if defective.
Motor contactor not energized	➢ Check for 24 VAC at contactor or relay coil. **If 24 VAC is not measured:** Turn oven off and: ➢ Check door switch for normal operation. ➢ Check door switch for continuity. ➢ Replace or adjust door switch. **If 24 VAC is measured:** Turn unit off and: ➢ Check contactor coil for continuity. ➢ Replace if defective.
No voltage across contactor points	➢ Check 120 VAC across "**C**" terminals of contactor. **If 120 VAC is not measured:** ➢ Check connection to main contactor (heat contactor). **If 208/240 VAC is measured:** ➢ Check across "**NO**" contacts. Should have 120 VAC. ➢ Replace if defective.
Defective motor	➢ Check for 120 VAC at motor. **If 120 VAC is measured,** Turn oven off: ➢ Check motor winding's for continuity. ➢ Replace if defective. **If120 VAC is not measured:** ➢ Check wiring between motor and contactor.

Note: Motor should now be operating.

NO MOTOR COMPUTER MODE

PROBABLE CAUSE	CORRECTIVE ACTION
No 24 VAC on Interface board	➢ Check for 24 VAC at **TP4** to common (**"D"**). **If 24 VAC is not measured:** ➢ Confirm that back up relay is energizing. ➢ Replace if defective. **If 24 VAC is measured:** ➢ Check for 24 VAC at **TP5.** ➢ Replace Interface board if defective.

NO HEAT MANUAL MODE

NOTE: Fan must be operating before trouble shooting No heat.

PROBABLE CAUSE	CORRECTIVE ACTION
Pilot burner fails to light	➢ Perform the following "trial ignition" and look and listen for spark: Attempt to light the pilot burner. If the burner does not ignite after 30 seconds, cycle power and repeat "trial ignition". The pilot may require several trials for ignition to bleed air from the gas piping. After the initial attempt pilot should only require 2-5 seconds for normal start up.
Spark observed	➢ Check for 24 VAC at pilot valve. **If 24 VAC is measured,** turn oven off: ➢ Check for pilot burner orifice for blockage. Clean and repair as necessary. ➢ Perform trial ignition as described in above section. ➢ Replace gas valve. **If 24 VAC is not measured:** ➢ Check for 24 VAC at PV on spark module. ➢ Check continuity on wire between PV on spark module and Pilot Valve.

PROBABLE CAUSE	CORRECTIVE ACTION
No Spark observed	Turn oven on. Refer to wiring diagram and check for 24 VAC at the TH terminal on the spark module. **If 24 VAC is measured,** Turn unit off and: ➢ Check large orange wire from igniter module to pilot burner for continuity, and for insulation breaks. ➢ Replace wire as necessary. ➢ Check spark electrode and hood of pilot burner. ➢ Check spark gap. Clean and re-gap if necessary. ➢ Check pilot burner for any evidence of moisture. Dry pilot if necessary. ➢ Replace spark module if above checks do not correct problem. **If 24 VAC is not measured,** Turn oven off and: ➢ Check 120/24 VAC transformer of 18.9 Ω on the primary coil and 1 Ω on the secondary coil. ➢ Turn unit back on and check primary coil for 120 VAC and secondary for 24 VAC. ➢ Replace if necessary.
Igniter continues to spark after pilot is lit	➢ Check pilot for strong flame and good contact with sensor. ➢ Check sense wire for 12 to 13 amps on spark module. (Johnson Control spark modules use **"4"** terminal and Channel spark modules use **"sense"** terminal). ➢ Turn oven off and check sense wire for continuity. ➢ Replace sense wire or spark module as necessary.
Defective thermostat	➢ Turn unit off and check for continuity while cycling thermostat on and off. ➢ Replace if defective.
Defective over-temp thermostat	➢ Check for 24 VAC on wire # 55 on MV of spark module to ground. **If 24 VAC is not measured,** Turn oven off and: ➢ Check for continuity through over-temp thermostat. ➢ Replace if defective.
Defective Centrifugal switch	**If 24 VAC is measured,** Turn oven off and: ➢ Check for continuity on the gas solenoid valve. ➢ Replace if defective. ➢ Check for 24 VAC on wire # 55 on MV of spark module to ground. **If 24 VAC is not measured:** ➢ Check for 24 VAC on red wire coming out of motor to ground. ➢ Replace if defective. **NOTE:** You can check for continuity through Centrifugal switch by turning thermostat off wile oven is still on. **If 24 VAC is measured,** Turn oven off and: ➢ Check for continuity on the gas solenoid valve. ➢ Replace if defective.

NO HEAT Computer Mode

PROBABLE CAUSE	CORRECTIVE ACTION
No 24 VAC on Interface board	➢ Check for 24 VAC at **TP4** to ground. **If 24 VAC is not measured:** ➢ Check back-up switch for normal operation. **If 24 VAC is measured:** ➢ Check for 24 VAC at **TP6.** ➢ Replace Interface board if defective.

DISPLAY LOCKS UP

PROBABLE CAUSE	CORRECTIVE ACTION
"Help" in display	➢ Check probe for proper resistance. ➢ Check that probe connections are secure. ➢ Push "TEMP" button on control board and check to see if temperature rapidly descends. If temp does descend rapidly, replace ribbon cable. ➢ Check to see that contactors/relays are not stuck in the closed position. ➢ Replace contactor if defective. ➢ Check for foreign objects keeping contactor closed.
"88888" stuck in display	➢ Check for stuck button by pressing any button. **If computer beeps or chirps:** ➢ Check control panel transformer (12 VAC) for proper operation. ➢ Check **TP1** for at least 10.5 VAC. ➢ Check **TP2** for at least 4.99 VDC. ➢ Check **TP3** for at least 4.97 VDC. **If computer does not beep or chirp:** ➢ Check each button for movement. ➢ Check that panel label has not been damaged in any way. ➢ Replace button if defective. ➢ Replace panel label.
Display has shelf "A"	➢ Read Programming Codes.

- To help troubleshoot the oven you should perform the following “Manual Override” test:
- Open drop down door located on the lower right side, directly below front panel.
- Turn back up toggle (on/off) switch to “on” position.
- Turn main power switch to “on” position.
- Check oven for normal operation.

FAILED IGNITION

PROBABLE CAUSE	CORRECTIVE ACTION
Defective Power Switch (-PP only)	➢ Confirm that toggle switch is getting correct voltage. ➢ Check power switch for normal operation.
Defective Power Switch output on circuit board (JP37)	➢ Confirm that **JP37** has **5VDC** in the off position and nominal voltage in the on position. ➢ If **JP37** has a constant **5VDC** check toggle switch for normal operation.
Defective Ignition output	➢ Check for 24VAC at **JP1** to Common (C) **If no voltage is present:** ➢ CPU is operating properly. **If voltage is present:** ➢ Output has failed.
Defective component transformer	➢ Confirm that 208/240VAC is feeding primary coil. ➢ Confirm that 24VAC is at secondary coil.
Defective Spark Module	➢ Check for 24VAC at **TH.** **If no voltage is present:** ➢ Check component transformer. **If voltage is present:** ➢ Check for pilot ignition. ➢ Replace spark module.
Defective pilot valve	➢ Check for 24VAC at pilot valve. **If no voltage is present:** ➢ Check component transformer. **If voltage is Present:** ➢ Confirm valve is operational.
Defective flame sensor	➢ Check flame sensor for 12 to 13 micro amps. ➢ Replace flame sensor.
Plugged orifice	➢ Clean orifice.

IMPORTANT NOTICE: Power must be disconnected at source when disconnecting any ribbon cable or any connector from CPU or Display. Failure to do so will result in damage to the Display board and CPU.

NO DISPLAY

PROBABLE CAUSE	CORRECTIVE ACTION
Defective Power Switch (-PP only)	➢ Confirm that toggle switch is getting correct voltage. ➢ Check power switch for normal operation.
Defective Power Switch output on circuit board (JP37)	➢ Confirm that JP37 has 5VDC in the off position and nominal voltage in the on position. ➢ If JP37 has a constant 5VDC check toggle switch for normal operation.
Defective Control Transformer	➢ Confirm that 208/240VAC is feeding primary coil. ➢ Confirm that 24VAC and 12VAC is at JP40 (24VAC across solid yellow wires and 12VAC from one solid yellow wire to yellow with red stripe).
Defective Display	➢ Check ribbon cable connections. ➢ Confirm that voltage is present at JP40. **If no voltage is present:** ➢ Replace control transformer. **If voltage is present:** ➢ Confirm that CPU has 5VDC at TP1 (this means that the CPU is getting correct voltage). ➢ Confirm that CPU has 12VDC at TP2 (this means that the CPU is sending out the correct voltage). **If no voltage is present:** ➢ Replace CPU. **If voltage is present:** ➢ Replace display.

NO MOTOR, MANUAL MODE

PROBABLE CAUSE	CORRECTIVE ACTION
Defective back-up toggle switch	➢ Confirm that toggle switch is in the "ON" position. ➢ Check toggle switch for normal operation.
Defective back-up relay	➢ Check for 24VAC at relay coil. **If no voltage is present:** ➢ Confirm that points are making. **If voltage is present:** ➢ Replace relay.
Defective component transformer	➢ Confirm that 120VAC is feeding primary coil. ➢ Confirm that 24VAC is at secondary coil.
Defective motor relay	➢ Check for 24VAC at relay coil. **If no voltage is present:** ➢ Confirm that points are making. **If voltage is present:** ➢ Replace relay.
Defective motor	➢ Check for 120VAC across P1 and T7/T4. **If no voltage is present:** ➢ Confirm that wires have continuity. **If voltage is present:** ➢ Replace motor.

NO MOTOR, COMPUTER MODE

IMPORTANT NOTICE: Before trying to trouble shoot "No Motor in Computer Mode" confirm that motor is operational in "Manual Mode".

PROBABLE CAUSE	CORRECTIVE ACTION
Defective output on CPU board	➢ Check for 24VAC at JP12 for high or JP13 for low (while oven is calling for heat). **If no voltage is present:** ➢ Board is operating correctly. **If voltage is present:** ➢ Replace CPU.

NO HEAT, MANUAL MODE

PROBABLE CAUSE	CORRECTIVE ACTION
Defective back-up toggle switch	➢ Confirm that toggle switch is in the "ON" position. ➢ Check toggle switch for normal operation.
Defective back-up relay	➢ Check for 120VAC at relay coil. **If no voltage is present:** ➢ Confirm that points are making. **If voltage is present:** ➢ Replace relay.
Defective component transformer	➢ Confirm that 120VAC is feeding primary coil. ➢ Confirm that 24VAC is at secondary coil.
Failed Ignition	➢ See Failed Ignition portion of this manual. ➢ Check for 24VAC at MV on the spark modual to ground. **If no voltage is present:** ➢ Confirm that pilot is lit. ➢ Replace as necessary. **If voltage is present:** ➢ Check thermostat for normal operation.
Defective Thermostat	➢ Confirm that thermostat has 24VAC. **If no voltage is present** ➢ Check component transformer and wiring for normal operation. **If voltage is present** ➢ Check thermostat for normal operation. Replace as necessary.
Defective centrifugal switch in motor	➢ Disconnect centrifugal switch and check of continuity while the motor is running. **If no continuity is present:** ➢ Replace motor. **If continutiy is present:** ➢ Check thermostat for normal operation. ➢ Check wires
Defective main valve	➢ Check for 24VAC across valve. **If no voltage is present:** ➢ Confirm that wires have continuity. **If voltage is present:** ➢ Replace valve.

NO HEAT, COMPUTER MODE

IMPORTANT NOTICE: Before trying to trouble shoot "No Heat in Computer Mode" confirm that the oven heats in "Manual Mode".

PROBABLE CAUSE	CORRECTIVE ACTION
Defective output on CPU board	➢ Check for 24VAC at JP2 (while oven is calling for heat). **If no voltage is present:** ➢ Board is operating correctly. **If voltage is present:** ➢ Replace CPU.

ANOMALIES

PROBABLE CAUSE	CORRECTIVE ACTION
Display will intermittently blank out	➢ Check ribbon cable for good connections ➢ Check panel label buttons and confirm that none of the domes are collapsed. **If domes are collapsed:** ➢ Replace panel label.
Intermittently over heats or under cooks	➢ Check probe for proper resistance. ➢ Check ribbon connection for good connection. ➢ Check probe for good connection.

TRANSFORMER RESISTANCE

TRANSFORMER	Input	Primary	Secondary	Output
➢ 120/24 Volt	120 Volt	18.9 Ω	1Ω	24 Volt
➢ 120/12 Volt	120 Volt	154.1 Ω	1 Ω	12 Volt
➢ 24/24 Volt	24 Volt	2.7 Ω	3.4 Ω	24 Volt

CONTACTOR RESISTANCE

CONTACTOR	Coil
➢ 3 Pole 24 Volt coil	6 Ω
➢ 2 Pole 24 Volt coil (P & B) (PP & PT motor)	35 Ω

RELAY RESISTANCE

RELAY	Coil
➢ 24 VAC	82 Ω

OVER-TEMP THERMOSTAT

OVER-TEMP	
➢ Wires	Normally closed

DOOR SWITCH

- Check switch between "COM" (common) and "NO" (normally open) contacts, insure switch closes approximately 3 to 4 inches before door closes.

BLOWER FAN

- Blower fan will rotate clockwise and should have a 5/8" gap between it and the back wall of the can.

AUTO/BYPASS SWITCH

The Auto / Bypass and Energy switch are located below the controls behind a pull down access panel

➢ Auto/Bypass switch	Normally in **"OFF"**. The **"ON"** position will interrupt power to the computer and allow use of the back-up thermostat.
➢ Energy switch	Normally in **"HIGH"** for 11 kW heats. **"LOW"** WILL PROVIDE 8.25 kW heat. Not provided on Steam convection ovens.

GAS VALVE

➢ Gas Valve	Coil	
➢ 24 Volt input	PV 28 Ω	MV 28 Ω

SPECIFACTIONS

MODEL	BTU'S		GAS CONNECTION	ELECTRICAL CONN. (SINGLE PAHCE)	WEIGHT	W/C	
	NG	LP				NG	LP
GCCO	55,000	55,000	One 1/2" NPT	One 120 VAC, 7.1A	500 LBS	5"	10"
2GCCO	110,000	110,000	Two 1/2" NPT	Two 120 VAC, 7.1A	1000 LBS	5"	10"
GCCO-XD	60,000	60,000	One 1/2" NPT	One 120 VAC, 7.1 A	575 LBS	5"	10"
2GCCO-XD	120,000	120,000	Two 1/2" NPT	Two 120 VAC, 7.1A	1150 LBS	5"	10"

GCCO–PT / PP COOKING CURVE CONVERSION

Old Style Purple	New Style Platinum / Purple Plus
0	0%
1	17%
2	26%
3	40%
4	50%
5	56%
6	63%
7	71%

PROBE RESISTANCE

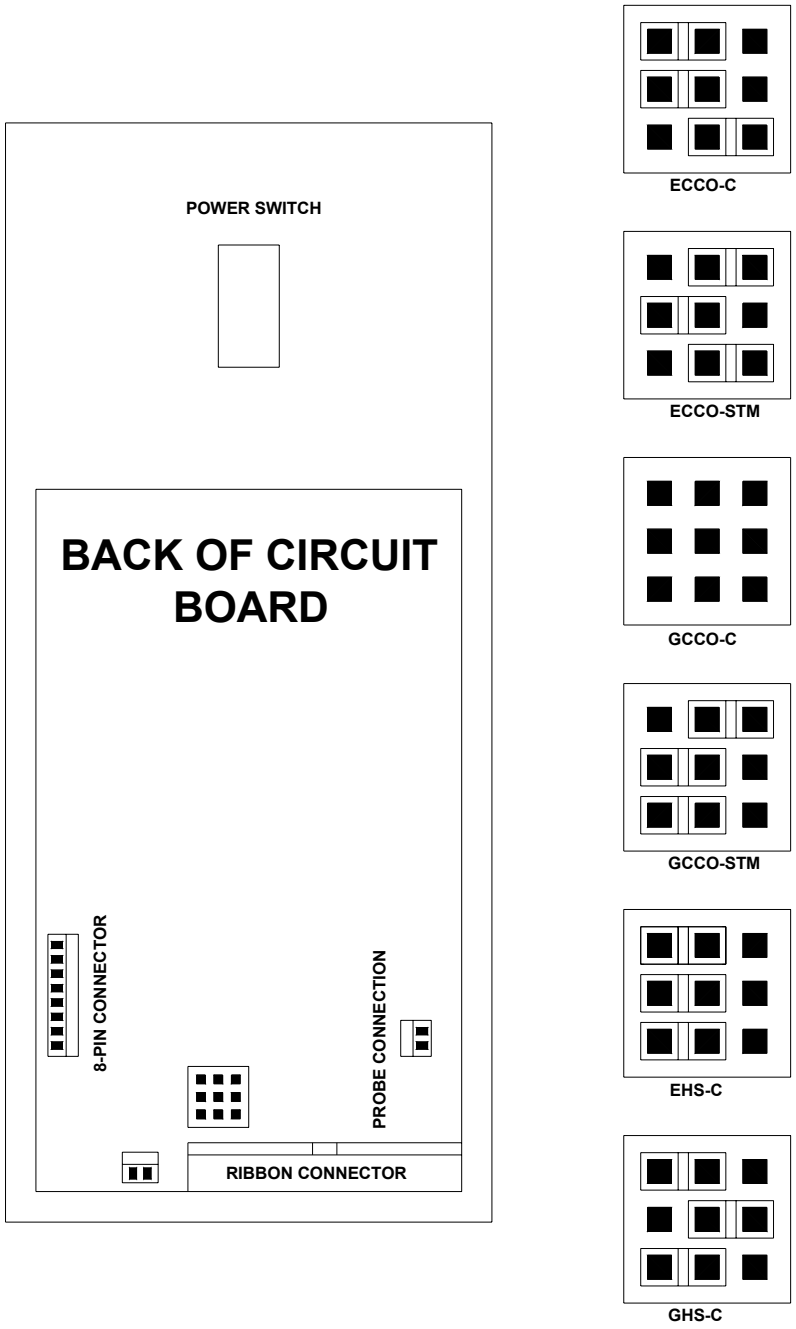
TEMP	RESISTANCE	VOLT DROP	TEMP	RESISTANCE	VOLT DROP
70°	556 Ω	1.11	290°	881 Ω	1.76
80°	569 Ω	1.14	300°	897 Ω	1.79
90°	583 Ω	1.17	310°	914 Ω	1.83
100°	596 Ω	1.19	320°	931 Ω	1.86
110°	610 Ω	1.22	330°	948 Ω	1.90
120°	623 Ω	1.25	340°	965 Ω	1.93
130°	637 Ω	1.27	350°	983 Ω	1.97
140°	651 Ω	1.3	360°	1000 Ω	2.00
150°	665 Ω	1.33	370°	1018 Ω	2.04
160°	678 Ω	1.36	380°	1036 Ω	2.07
170°	694 Ω	1.39	390°	1054 Ω	2.11
180°	709 Ω	1.42	400°	1072 Ω	2.14
190°	724 Ω	1.45	410°	1090 Ω	2.18
200°	739 Ω	1.48	420°	1109 Ω	2.22
210°	754 Ω	1.51	430°	1127 Ω	2.25
220°	769 Ω	1.54	440°	1146 Ω	2.29
230°	785 Ω	1.57	450°	1165 Ω	2.33
240°	800 Ω	1.60	460°	1184 Ω	2.37
250°	816 Ω	1.63	470°	1204 Ω	2.41
260°	832 Ω	1.66	480°	1223 Ω	2.45
270°	848 Ω	1.70	490°	1243 Ω	2.49
280°	864 Ω	1.73	500°	1263 Ω	2.53

NOTE

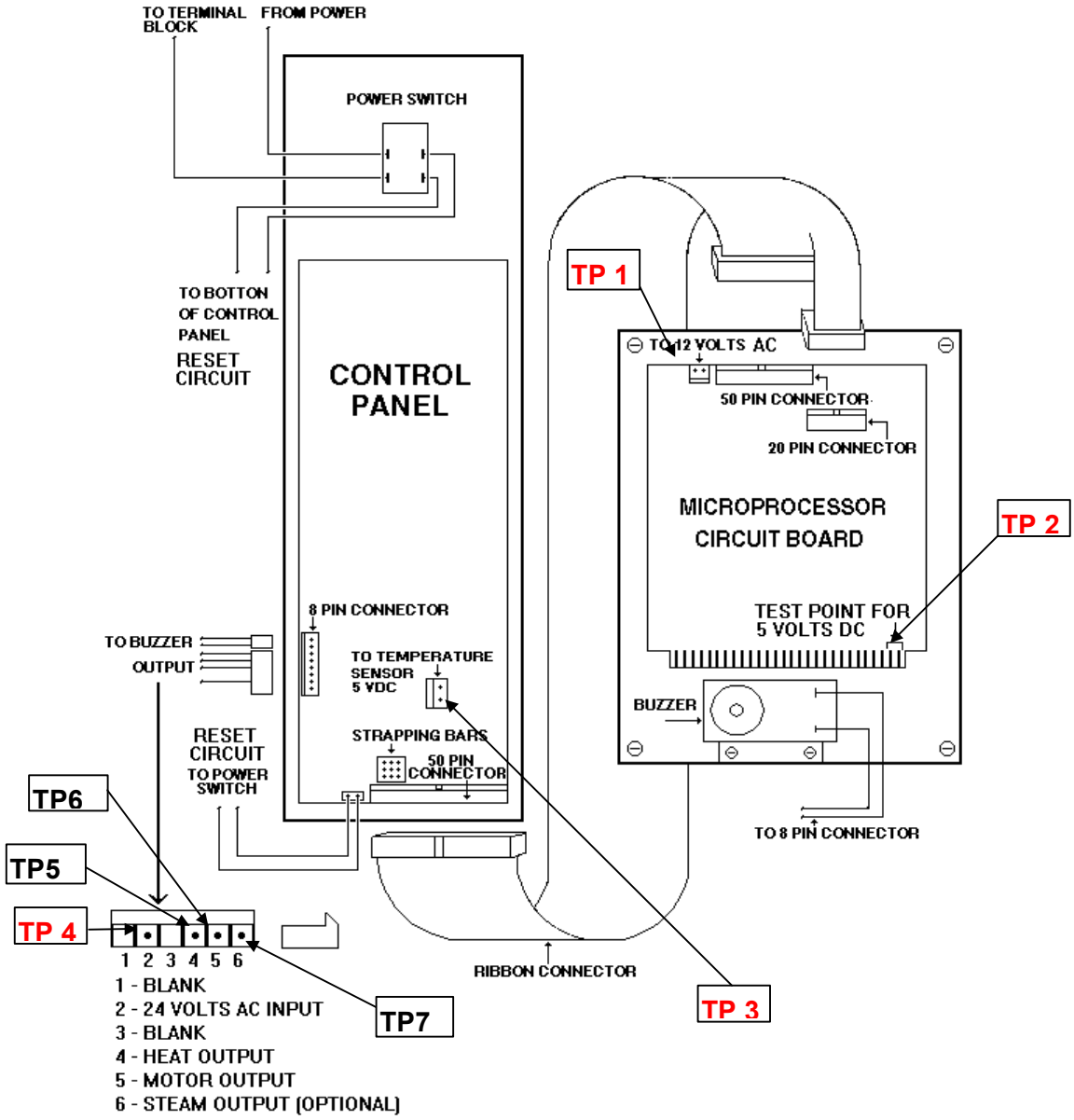
Probe is factory checked at 350 °F. Must be completely disconnected from circuit board when measuring probe resistance. Display will read "**HELP**" if probe is open or unplugged. Any probe resistance can be multiplied by 2 milli-amps (.002) to determine voltage drop.

GCCO-C MODEL STRAPPING

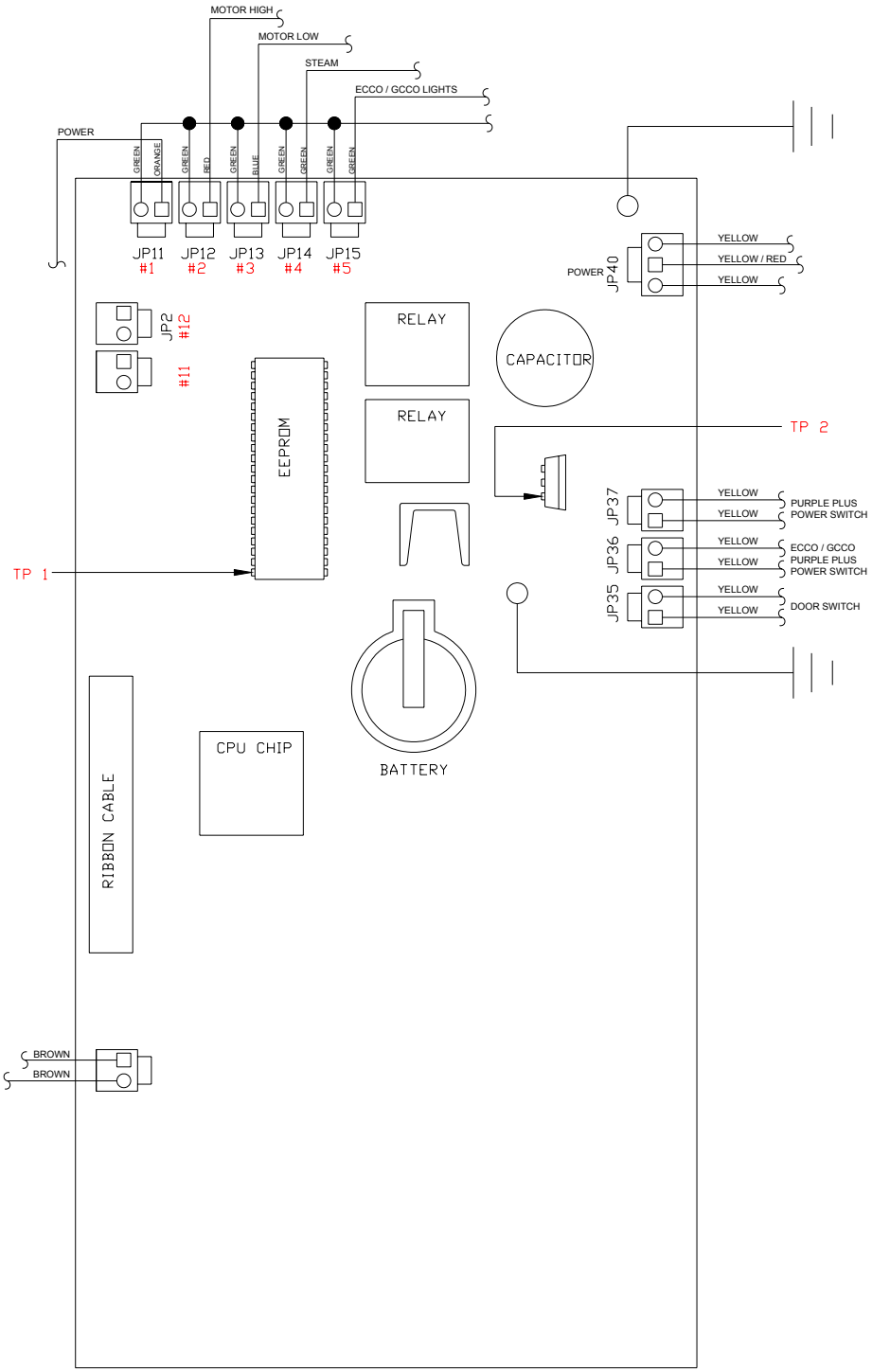
The Front Control panel of the Lang "Purple" computer must be configured to match the model of oven it is being installed in. To configure the front control panel, you must change the arrangement of the **Strapping Bars** located at the bottom of the circuit board just above the ribbon connection. Each model has its own strapping configuration, which **must** be set by the service technician. Follow the diagram below for the proper strapping configuration.



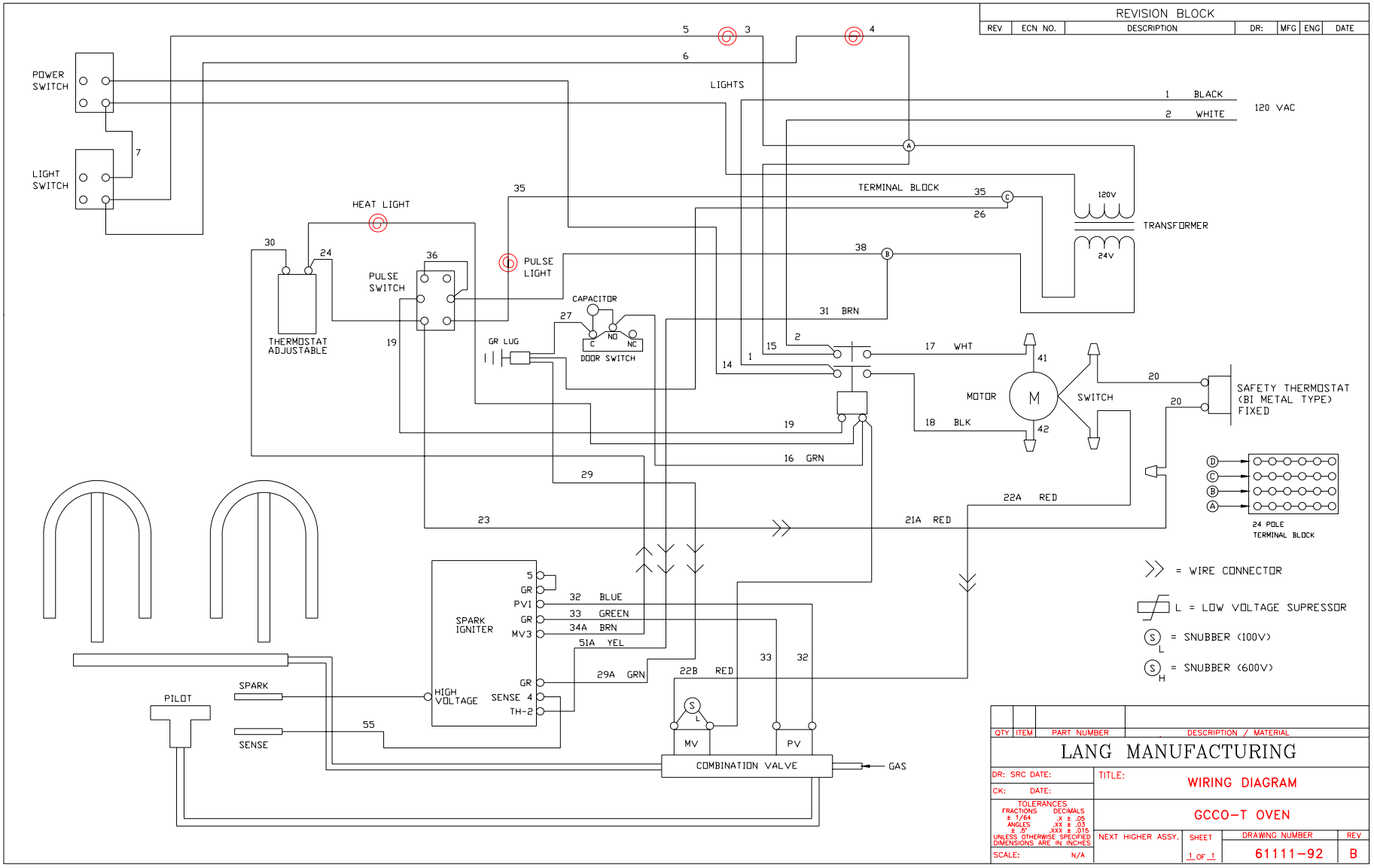
GCCO-C TEST POINT LAYOUT



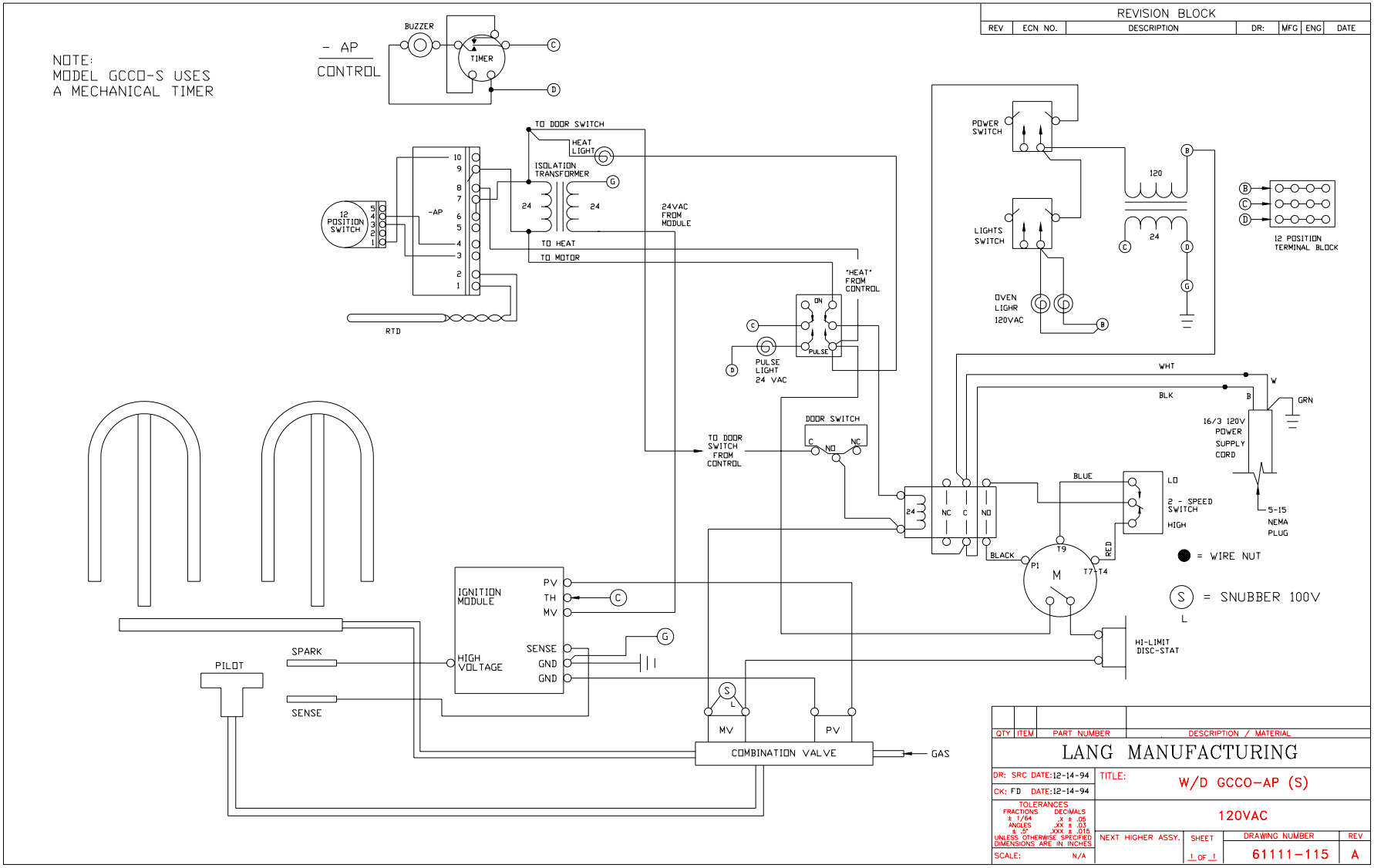
GCCO-PP / -PT TEST POINT LAYOUT



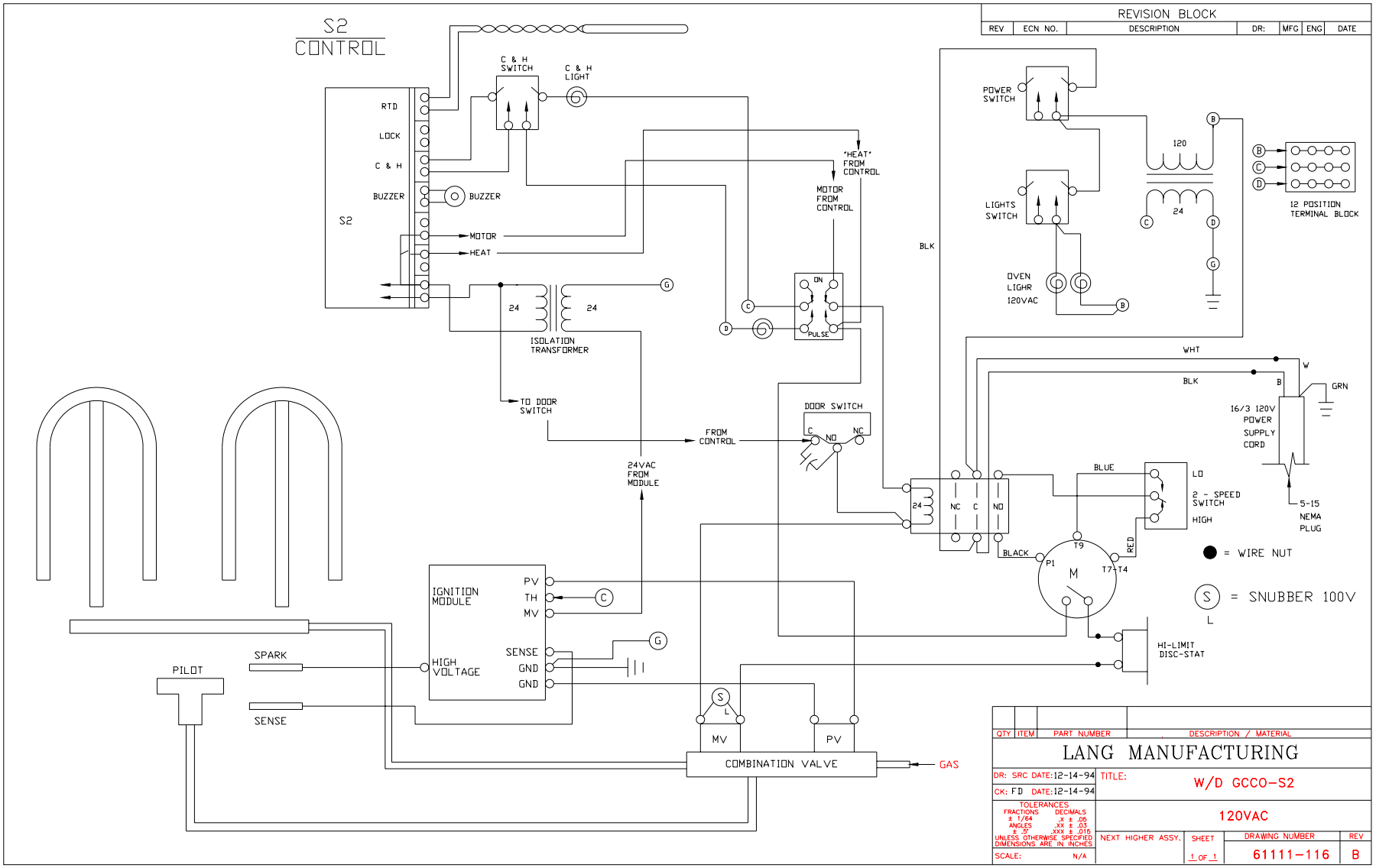
WIREING DIAGRAM GCCO-T



WIRING DIAGRAM GCCO-AP



WIRING DIAGRAM GCCO-SII



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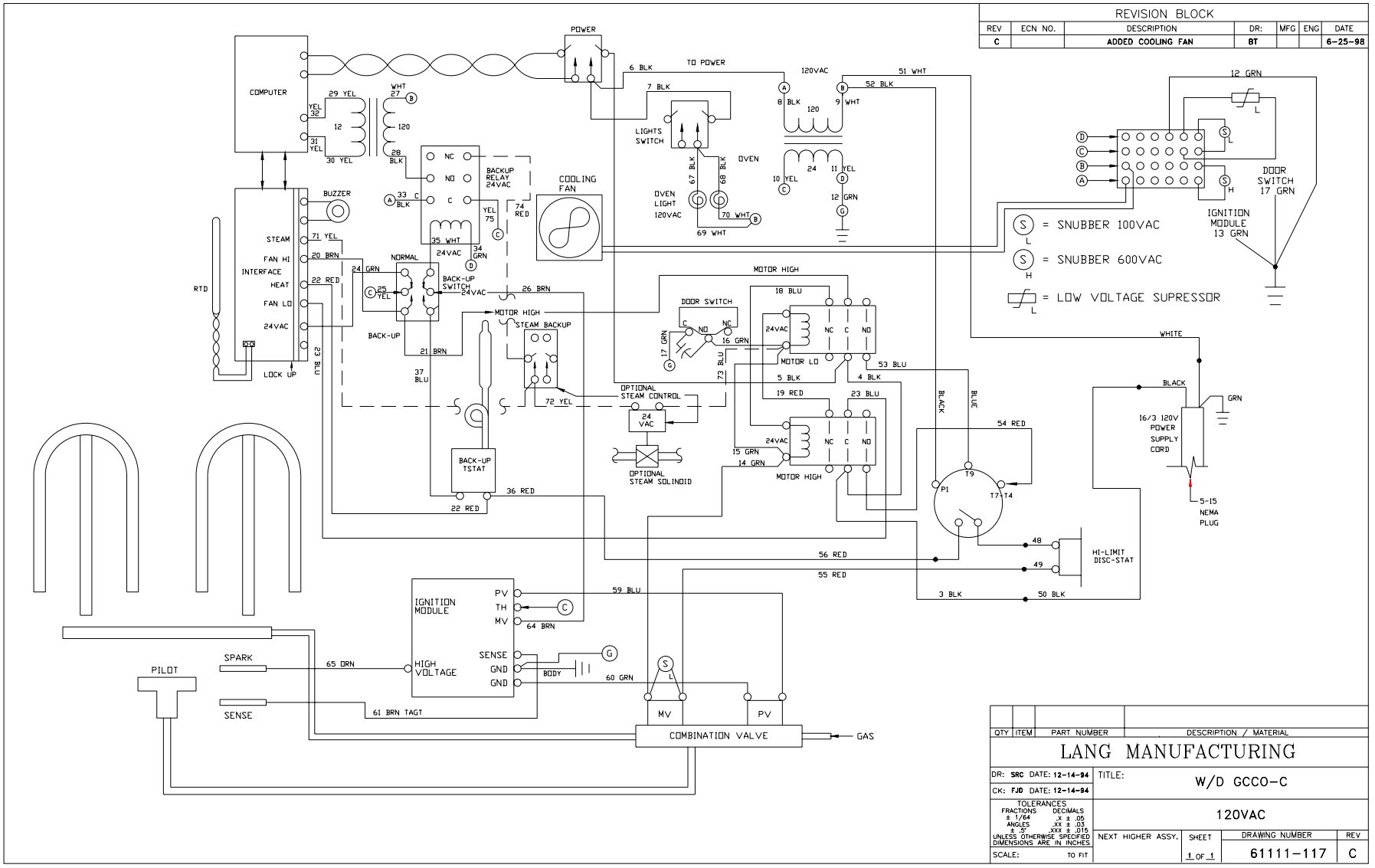

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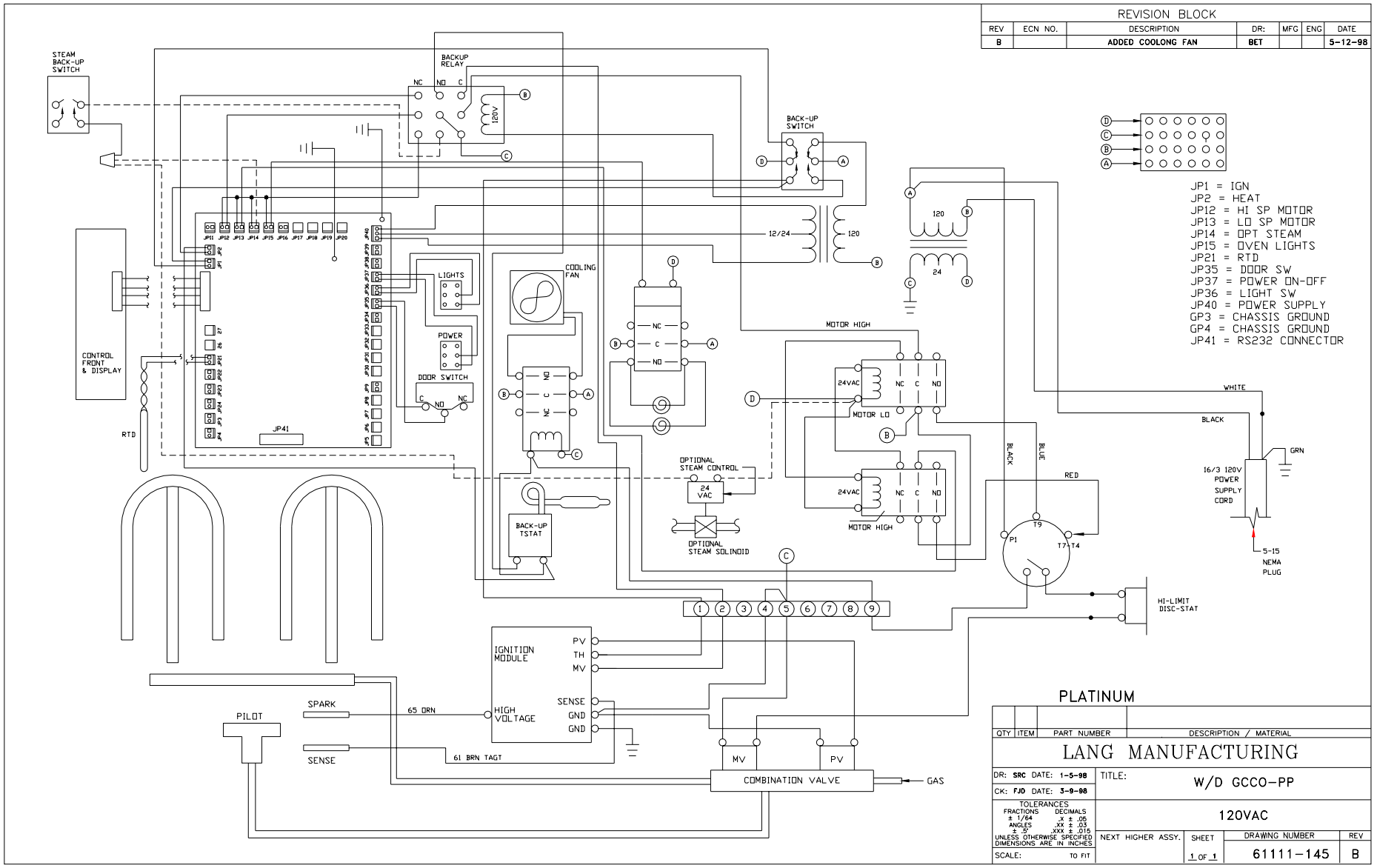

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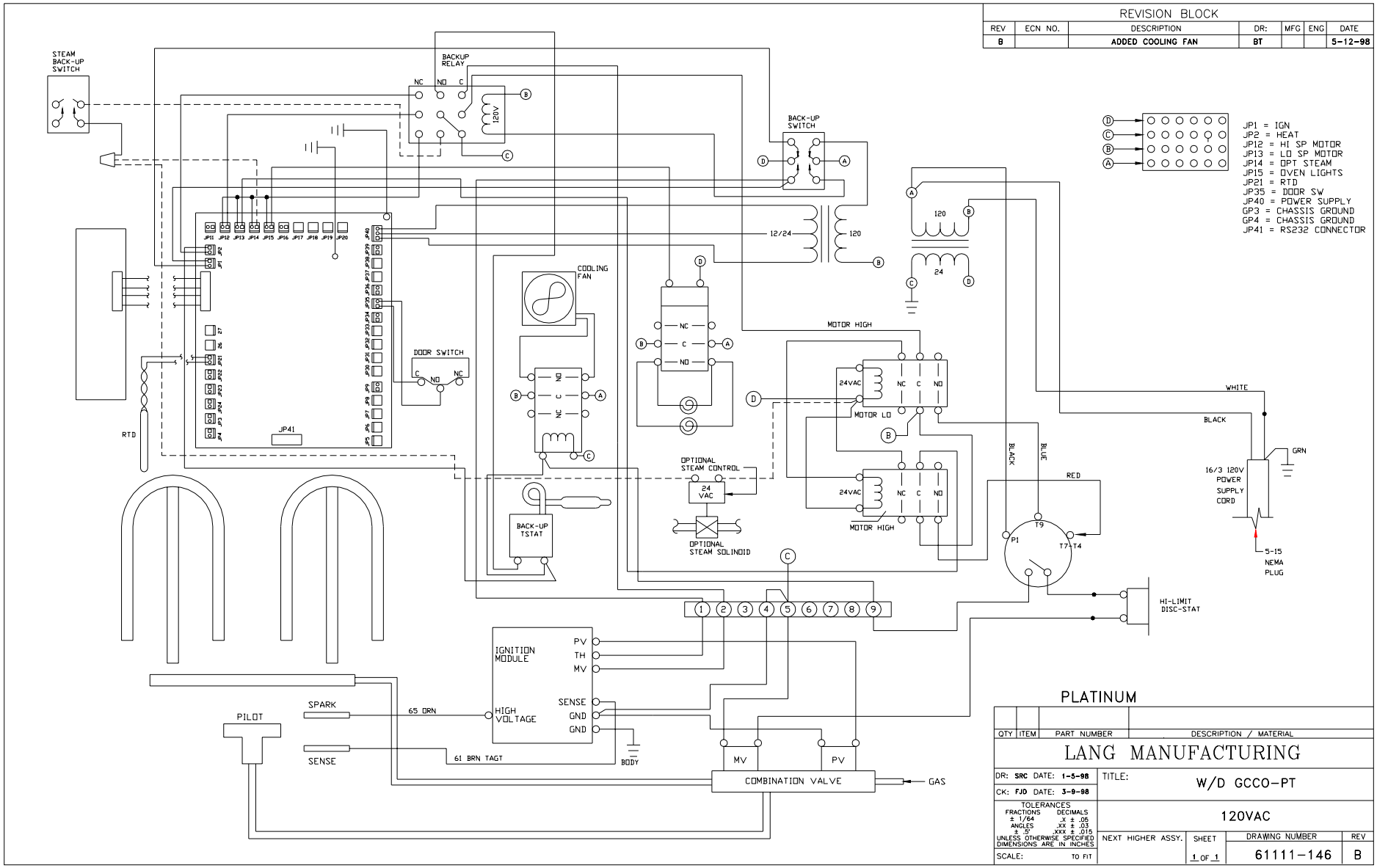

DESCRIPTION	PART NO.
Motor 1/3 HP 115/230 Volt with Momentary Switch (Before A-90068)	30200-15
Motor 1/3 HP 115 Volt 2 Speed (After C-90069)	30200-35
Micro Switch, Oven Door	30301-02
Switch, Toggle, On-On	30303-06
Switch, Toggle, Spring Return	30303-16
Thermostat Safety 490°F Open	30401-09
Thermostat 450°F Oven	30402-27
Terminal Strip 3 Pole	30501-02
Contactor 2 Pole 24 VAC (Before A-90068)	30701-04
Contactor 2 Pole 24 VAC (After C-90069)	30701-05
Timer Electric 1 Hour 24V (After C-90069)	30800-05
Timer Mechanical Long Ring (Before A-90068)	30801-01
Buzzer Electric Timer 24V (After C-90069)	30802-04
Power Cord with Molded Plug	31107-02
Transformer 115/24 VAC	31400-07
Pilot Light 28 VAC	31601-07
Lamp Socket	31602-04
Lamp 250 Volt	31603-09
Oven Lamp Lens (Watch Glass)	31604-01
Oven Lamp Lens Gasket	31604-02
Probe Pilot Flame Sensor	41100-07
Turnbuckle Assembly	50312-02
Door Left Hand	51100-45
Door Right Hand	51100-46
Panel Label (Before A-90068)	60301-91
Panel Label (After C-90069)	60301-101
Door Handle Assembly, Single Handle Oven	70603-15
Knob Time Control (Before A-90068)	70701-27
Knob Time/Temperature Control	70701-28
Window Assembly	71301-04
Blower Wheel	71500-05
Burner “U” Tube Steel	80002-05-1
Gas Manifold	80100-07
Pilot Burner Assembly	80201-14
Pilot Tube	60102-1381
Module Spark Ignitor NG & LP	80300-08
Orifice Main Burner .0890 #43 DRL NG	80400-13
Orifice Main Burner .0595 #53 DRL LP	80400-14
Orifice Pilot Burner .010 DRL LP	80401-05
Orifice Pilot Burner .018 DRL NG	80401-10
Valve Combination Gas 24 VAC NG (Before A-87433)	60101-63
Valve Combination Gas Conversion Kit NG to LP (Before A-87433)	80505-07
Valve Combination Gas 24 VAC NG (After A-87433)	80505-10
Valve Combination Gas Conversion Kit NG to LP (After A-87433)	80505-11

DESCRIPTION	PART NO.
Motor 1/3 HP 115 Volt 2 Speed	30200-35
Micro Switch, Oven Door	30301-02
Switch, Toggle, On-On	30303-06
Switch, Toggle, Spring Return	30303-16
Switch Temperature Control 12 Position 140-450°F	30304-16
Thermostat Safety 490°F Open	30401-09
Terminal Strip 3 Pole	30501-02
Contactor 2 Pole 24 VAC	30701-05
Timer Electric 1 Hour 24V	30800-05
Buzzer Electric Timer 24V	30802-04
Power Cord with Molded Plug	31107-02
Transformer 115/24 VAC	31400-07
Transformer Isolation 24V	31400-24
Pilot Light 28 VAC	31601-07
Lamp Socket	31602-04
Lamp 250 Volt	31603-09
Oven Lamp Lens (Watch Glass)	31604-01
Oven Lamp Lens Gasket	31604-02
Circuit Board Temperature Control	40101-19
Probe Pilot Flame Sensor	41100-07
Probe Temperature Sensor	41100-08
Turnbuckle Assembly	50312-02
Door Left Hand	51100-45
Door Right Hand	51100-46
Panel Label	60301-100
Knob Time/Temperature Control	70701-28
Window Assembly	71301-04
Blower Wheel	71500-05
Burner “U” Tube Steel	80002-05-1
Pilot Burner Assembly	80201-14
Pilot Tube	60102-1381
Module Spark Ignitor NG & LP	80300-08
Orifice Main Burner .0890 #43 DRL NG	80400-13
Orifice Main Burner .0595 #53 DRL LP	80400-14
Orifice Pilot Burner .010 DRL LP	80401-05
Orifice Pilot Burner .018 DRL NG	80401-10
Valve Combination Gas 24 VAC NG	80505-10
Valve Combination Gas Conversion Kit NG to LP	80505-11

DESCRIPTION	PART NO.
Motor 1/3 HP 115/230 Volt with Momentary Switch	30200-15
Motor 1/3 HP 115 Volt 2 Speed	30200-35
Micro Switch, Oven Door	30301-02
Switch, Toggle, On-On	30303-06
Switch, Toggle, Spring Return	30303-16
Thermostat Safety 490°F Open	30401-09
Terminal Strip 3 Pole	30501-02
Contactor 2 Pole 24 VAC (Before F-90068)	30701-04
Contactor 2 Pole 24 VAC (After H-90069)	30701-05
Power Cord with Molded Plug	31107-02
Transformer 115/24 VAC	31400-07
Transformer 24 VAC Isolation (After H-90069)	31400-24
Transformer 115/12 VAC (After H-90069)	31400-26
Pilot Light 28 VAC	31601-07
Lamp Socket	31602-04
Lamp 250 Volt	31603-09
Oven Lamp Lens (Watch Glass)	31604-01
Oven Lamp Lens Gasket	31604-02
Circuit Board Temperature Control	40101-17
Circuit Board Buzzer	40102-10
Probe Pilot Flame Sensor	41100-07
Probe Temperature Sensor	41100-08
Turnbuckle Assembly	50312-02
Door Left Hand	51100-45
Door Right Hand	51100-46
Panel Label (Before F-90068)	60301-58
Panel Label, 2 Speed Fan (Before F-90068)	60301-73
Panel Label (After H-90069)	60301-102
Door Handle Assembly, Single Handle Oven	70603-15
Window Assembly	71301-04
Blower Wheel	71500-05
Bezel Control Board	72603-01
Bezel Fiber Spacer (Before H-90435)	20501-01
Bezel Screw, Short Qty. 1 (Before H-90435)	20102-19
Bezel Screw, Long Qty. 4 (Before H-90435)	20102-20
Bezel Washer (Before H-90435)	20201-13
Burner “U” Tube Steel	80002-05-1
Gas Manifold	80100-07
Pilot Burner Assembly	80201-14
Pilot Tube	60102-1381
Module Spark Ignitor NG (Before F-79932)	80300-04
Module Spark Ignitor LP (Before F-79932)	80300-05
Module Spark Ignitor NG & LP (After F-79933)	80300-08
Orifice Main Burner .0890 #43 DRL NG	80400-13
Orifice Main Burner .0595 #53 DRL LP	80400-14
Orifice Pilot Burner .010 DRL LP	80401-05
Orifice Pilot Burner .018 DRL NG	80401-10
Valve Combination Gas 24 VAC NG (Before F-87432)	60101-63
Valve Combination Gas Conversion Kit NG to LP (Before F-87432)	80505-07
Valve Combination Gas 24 VAC NG (After F-87433)	80505-10
Valve Combination Gas Conversion Kit NG to LP (After F-87433)	80505-11

DESCRIPTION	PART NO.
Motor 1/3 HP 115/230 Volt with Momentary Switch (Before X-90068)	30200-15
Motor 1/3 HP 115 Volt 2 Speed (After V-90069)	30200-35
Switch Micro Convection Oven Door	30301-02
Switch Toggle On-Off	30303-06
Switch Toggle Spring Return	30303-16
Thermostat Safety 490°F Open (After G-70469)	30401-09
Thermostat 450°F Oven	30402-27
Terminal Block 24 Position Quick Disconnect	30503-01
Relay 24 VAC	30600-04
Contactor 2 Pole 24 VAC (Before X-90068)	30701-04
Contactor 2 Pole 30 Amp 24 VAC (After V-90069)	30701-05
Power Cord with Molded Plug	31107-02
Cable Ribbon Assembly (After G-70469)	31110-01
Transformer 115/24 VAC	31400-07
Transformer 115/12 VAC	31400-21
Lamp Socket	31602-04
Lamp Incandescent 250 Volt Clear	31603-09
Oven Lamp Lens (Watch Glass)	31604-01
Oven Lamp Lens Gasket	31604-02
Circuit Board Assembly Buzzer (After G-70469)	40102-10
Circuit Board Front Panel (After G-70469)	40102-20
Circuit Board Microprocessor (After G-70469)	40102-44
Circuit Board Upgrade Kit (Before G-70469)	60101-53
Probe Pilot Flame Sensor	41100-07
Probe Temperature Sensor	41100-08
Door Handle 11 1/2” Long Black “T” Style (Double Handle Ovens)	50800-12
Turnbuckle Assembly (Single Handle Ovens)	50312-02
Door Left Hand (Single Handle Ovens)	51100-45
Door Right Hand (Single Handle Ovens)	51100-46
Panel Label, Purple	60301-42
Valve Manual Main Water Supply (Steam Units)	70400-02
Valve Manual Water Supply (Steam Units)	70402-08
Valve Solenoid 24/60V Water Supply (Steam Units)	70403-01
Regulator Water Supply (Steam Units)	70404-01
Handle Assembly, Single Handle Oven	70603-15
Knob Thermostat 450°F Oven	70701-17
Window Assembly, Oven Door	71301-04
Blower Wheel	71500-05
Blower Wheel (Steam Units)	51100-57
Orifice Water/Steam #60 DRL (Steam Units)	80405-01
Burner “U” Tube Steel	80002-05-1
Pilot Burner Assembly	80201-14
Pilot Tube	60102-1381
Module Spark Ignitor NG (Before G-70469)	80300-04
Module Spark Ignitor LP (Before G-70469)	80300-05
Module Spark Ingitor NG & LP (After G-70469)	80300-08
Orifice Main Burner .0890 #43 DRL NG	80400-13
Orifice Main Burner .0595 #53 DRL LP	80400-14
Orifice Pilot Burner .010 DRL LP	80401-05
Orifice Pilot Burner .018 DRL NG	80401-10
Valve Combination Gas 24 VAC NG (Before X-87440)	60101-63
Valve Combination Gas Conversion Kit NG to LP (Before X-87440)	80505-07
Valve Combination Gas 24 VAC NG (After X-87441)	80505-10
Valve Combination Gas Conversion Kit NG to LP (After X-87441)	80505-11

DESCRIPTION	PART NO.
Motor 1/3 HP 115 Volt 2 Speed	30200-35
Switch Micro Convection Oven Door	30301-02
Switch Toggle On-Off	30303-06
Switch Toggle Spring Return	30303-16
Thermostat Safety 490°F Open	30401-09
Thermostat 450°F Oven	30402-27
Terminal Block 24 Position Quick Disconnect	30503-01
Relay 24 VAC	30600-04
Contactor 2 Pole 24 VAC	30701-02
Contactor 2 Pole 30 Amp 24 VAC	30701-05
Power Cord with Molded Plug	31107-02
Cable Ribbon Assembly	31110-13
Transformer 115/24-12 VAC	31400-27
Lamp Socket	31602-04
Lamp Incandescent 250 Volt Clear	31603-09
Oven Lamp Lens (Watch Glass)	31604-01
Oven Lamp Lens Gasket	31604-02
Circuit Board Display	40102-24
Circuit Board Microprocessor	40102-26
Probe Pilot Flame Sensor	41100-07
Probe Temperature Sensor	41100-08
Oven Rack	50200-32
Oven Rack Slide	50200-59
Turnbuckle Assembly	50312-02
Door Left Hand	51100-45
Door Right Hand	51100-46
Panel Label, Purple Plus	60101-881
Valve Manual Main Water Supply (Steam Units)	70400-02
Valve Manual Water Supply (Steam Units)	70402-08
Valve Solenoid 24/60V Water Supply (Steam Units)	70403-01
Regulator Water Supply (Steam Units)	70404-01
Handle Assembly, Single Handle Oven	70603-15
Knob Thermostat 450°F Oven	70701-17
Window Assembly, Oven Door	71301-04
Blower Wheel	71500-05
Blower Wheel (Steam Units)	51100-57
Orifice Water/Steam #60 DRL (Steam Units)	80405-01
Burner “U” Tube Steel	80002-05-1
Pilot Burner Assembly	80201-14
Pilot Tube	60102-1381
Module Spark Igniter NG & LP	80300-08
Orifice Main Burner .0890 #43 DRL NG	80400-13
Orifice Main Burner .0595 #53 DRL LP	80400-14
Orifice Pilot Burner .010 DRL LP	80401-05
Orifice Pilot Burner .018 DRL NG	80401-10
Valve Combination Gas 24 VAC NG	80505-10
Valve Combination Gas Conversion Kit NG to LP	80505-11
Wiring Harness, Motor	GCCO-608
Wiring Harness, 120 Volt	GCCO-609
Wiring Harness, 24 Volt	GCCO-610

DESCRIPTION	PART NO.
Motor 1/3 HP 115 Volt 2 Speed	30200-35
Switch Micro Convection Oven Door	30301-02
Switch Toggle On-Off	30303-06
Switch Toggle Spring Return	30303-16
Thermostat Safety 490°F Open	30401-09
Thermostat 450°F Oven	30402-27
Terminal Block 24 Position Quick Disconnect	30503-01
Relay 24 VAC	30600-04
Contactor 2 Pole 24 VAC	30701-02
Contactor 2 Pole 30 Amp 24 VAC	30701-05
Power Cord with Molded Plug	31107-02
Cable Ribbon Assembly	31110-13
Transformer 115/24-12 VAC	31400-27
Lamp Socket	31602-04
Lamp Incandescent 250 Volt Clear	31603-09
Oven Lamp Lens (Watch Glass)	31604-01
Oven Lamp Lens Gasket	31604-02
Circuit Board Display	40102-25
Circuit Board Microprocessor	40102-26
Probe Pilot Flame Sensor	41100-07
Probe Temperature Sensor	41100-08
Oven Rack	50200-21
Oven Rack Slide	50200-59
Turnbuckle Assembly	50312-02
Door Left Hand	51100-45
Door Right Hand	51100-46
Panel Label, Platinum	60101-882
Valve Manual Main Water Supply (Steam Units)	70400-02
Valve Manual Water Supply (Steam Units)	70402-08
Valve Solenoid 24/60V Water Supply (Steam Units)	70403-01
Regulator Water Supply (Steam Units)	70404-01
Handle Assembly, Single Handle Oven	70603-15
Knob Thermostat 450°F Oven	70701-17
Window Assembly, Oven Door	71301-04
Blower Wheel	71500-05
Blower Wheel (Steam Units)	51100-57
Orifice Water/Steam #60 DRL (Steam Units)	80405-01
Burner “U” Tube Steel	80002-05-1
Pilot Burner Assembly	80201-14
Pilot Tube	60102-1381
Module Spark Ingitor NG & LP	80300-08
Orifice Main Burner .0890 #43 DRL NG	80400-13
Orifice Main Burner .0595 #53 DRL LP	80400-14
Orifice Pilot Burner .010 DRL LP	80401-05
Orifice Pilot Burner .018 DRL NG	80401-10
Valve Combination Gas 24 VAC NG	80505-10
Valve Combination Gas Conversion Kit NG to LP	80505-11
Wiring Harness, Motor	GCCO-608
Wiring Harness, 120 Volt	GCCO-609
Wiring Harness, 24 Volt	GCCO-610

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